Home Computing WEEKLY

An Argus Specialist Publication

No.45
Jan 17-23, 1984

40p

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BBC: get music and graphics — at the same time

3D shapes on VIC

More programs for: Spectrum, Dragon, Texas

FIRST REPORTS

New micros from Sinclair and Oric. All the details, plus pictures

Digger v. the aliens

Programmer Jonathan Griffiths got behind the wheel of a 7½-ton excavator — to help write a computer game.

The result is a tape called JCB Digger, due out for the BBC model B micro within six weeks from Acornsoft.

Players see an aerial view of a digger — in JCB yellow with black tyres, red wheel hubs and white scoop. The aim is to dig a hole with the scoop and entice, or wait for, an alien to fall in and then use the bucket to re-fill the hole.

Talks between J. C. Bamforth, the Staffordshire-based makers, and Acornsoft began a year ago.

Mr Griffiths, 21, spent two

Continued on page 6

TED arrives in spring

Commodore is to launch a new home computer here in April. Codenamed TED, it will be marketed as the Commodore 364 at a US price of $500.

Although the final design for the UK has not been decided, it will have a brand new BASIC.

This means that Commodore is breaking with its usual policy of ensuring that new computers are compatible with earlier models.

The new language is called BASIC 4-plus and is an enhanced version of the BASIC used on the company's business machines.

Commodore's UK marketing

Continued on page 6

new Spectrum Adventure

CDS Micro Systems
10, Westfield Close, Tickhill,
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new Spectrum Arcade action

CDS Micro Systems
10, Westfield Close, Tickhill,
Doncaster DN11 9LA.

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Briefly

Acorn has brought out a dual format disc system allowing floppy discs to be read by both 40 and 80 track drives. All Acornsoft's new disc-based titles will be in the dual format, and titles being sold on standard discs now will be made available in dual format versions later this year. Dual format discs will cost the same as the single format discs they replace.

Acornsoft, 4a Market Hill, Cambridge CB2 3NJ

• • •

AVF have launched a new computer workstation called Program 1. It's a teak-effect desk with a VDU support that also provides space for disk drives. The VDU can be placed on the left or right hand of the desk top and in two positions from the front edge. The unit comes packed flat for self-assembly.
Price: £45

AVF, Dixon Street, Wolverhampton

• • •

VIC-20 specialists Sumlock are now moving into Commodore 64 software with Gridtrap 64, Jumpin Jack 64 and Triad 64, all retailing at £8.95. Gridtrap comes with an entry form for the ive Wire High Score Competition. First prize is a Commodore 1541 disc drive, second prize a Commodore 1520 colour printer plotter, third prize a Simons BASIC package and seven runners-up win Pro-Ace competition joysticks.

Sumlock, Royal London House, 198 Deansgate, Manchester M2 3NE

• • •

Alan Firminger has reduced the price of his All-Sort program, which gives machine code sorts for use in BASIC on a Spectrum, to £9.95. This, Alan says, is because he didn't have to supply as much after-sales service as he had expected for the first copies sold.
Alan Firminger, 171 Herne Hill, London SE24 9LR

There's eight pages of software reviews in this issue — that's 40 programs rated by our panel, more than any other magazine

Vortex SOFTWARE

Turn to the competition on page 9. There's 200 chances to win a share of £1,000-worth of games from Vortex Software

We begin a major series on page 21 which will give you Extended BASIC on your Commodore 64. Type in this week's listings and use them straight away. And make sure you get the next two issues

LUNAR JETMAN – For the **48K Sinclair ZX Spectrum**
LUNAR JETMAN – The Ultimate Intergalactic **G.A.S. (Graphic Arcade Simulation)** Adventure Space Battle.
LUNAR JETMAN – Arcade standard, 100% machine code, incredible sound effects, amazing smooth high resolution graphics, the totally new addictive concept and all those extra features you expect from the **ULTIMATE** games people.
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COOKIE – 16/48K ZX Spectrum

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TRANZ AM – 16/48K ZX Spectrum

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ATIC ATAC – 48K ZX Spectrum

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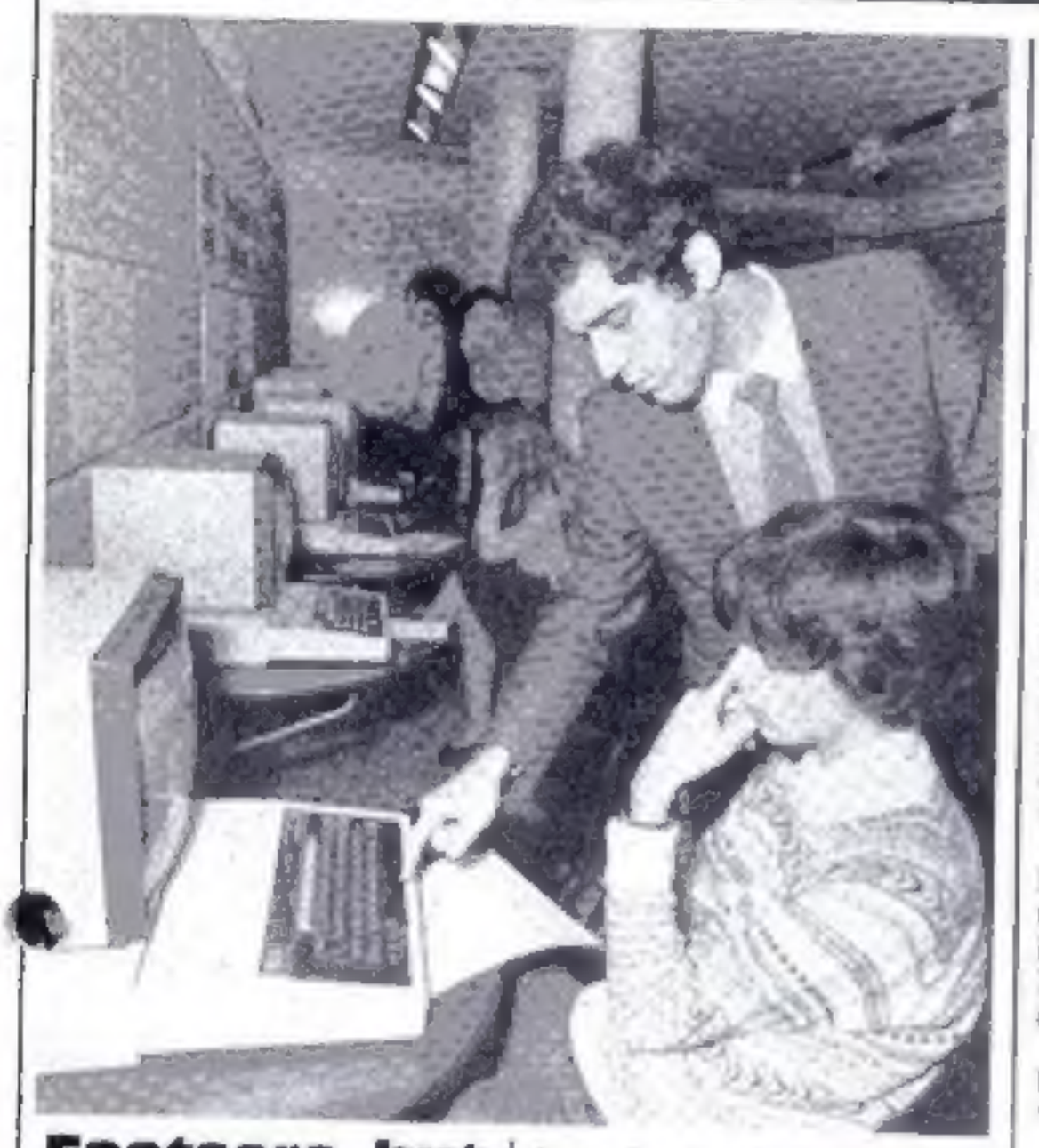

Footsore, but winning

Having won the Acorn Computer World Chess Championship semi-finals, Gary Kasparov — the young Russian tipped as the next world champion — is seen at Acorn's London showroom taking on 10 junior chess players simultaneously. Rather than using traditional chess boards, the games were run on BBC micros with Acornsoft chess programs. After playing on his feet for six hours, Kasparov won 6-4.

New micro: 'free' monitor

Every CPC 64 home micro from Amstrad will include a 12-inch green screen monitor and built-in cassette player for about £200 all-in.

Amstrad, best-known for hi-fi equipment, plans an April launch. Using a Z80A processor running at 4MHz, the computer will have 64K of RAM and typewriter-style keyboard with numeric keypad plus five separate cursor control keys.

Screen resolution will be 320 by 200 graphics and 80 columns by 25 rows text and offer 24 colours. There will be three-channel, seven octave sound and a Centronics interface.

Clearly aimed at the Commodore 64, its specially written BASIC is similar to the industry standard with additional commands.

Amstrad plans to have 50 software packages available at launch.

Elkan Electronics has now brought out quick reference cards for the VIC-20 and the Commodore 64. The cards are intended for use as easier-to-use versions of the reference manual, and are small enough to fit in your pocket. They cost £3.95 each.

Elkan Electronics, 11 Bury New Road, Prestwich, Manchester M25 8JZ

The director of computing for Hertz Europe, Jonathan Chapple, has written a £4.95 book designed to give a simple introduction to Sinclair computers, starting with plugging in and switching on. It is called I Wish I Knew . . . About the Spectrum and the ZX81 and is published by Pitman.

Pitman Books, 128 Long Acre, London WC2E 9AN

□ □ □

Audiogenic has announced a home database system for the 48K Spectrum called Data Genie. The system is said to let you organise records and retrieve them in the way you want, using "pop-up" menus controlled by three keys. The system will hold up to 146 records each with 15 lines of data, and costs £9.95.

Audiogenic, PO Box 88, Reading

Row over cut-price 64s

Fair trading officers are looking into a complaint that Commodore refused to supply a cut-price shop.

Commodore 64s are on sale in London's Regent Street at £15 less than other retailers.

Michale Mehdi, 28, managing director of Crestmatt, said he had been told to increase the price to the usual £199.95 — and that he had tapes of phone conversations and witnesses to prove it.

He had received no reply to letters in November and last month requesting £10,000-worth of stock from Commodore. If necessary he would take his complaint to the European Court.

Now the Office of Fair Trading has confirmed that it has received the complaint. A spokesman said it was illegal under the 1976 Resale Prices Act to refuse supply over pricing.

John Baxter, Commodore's UK marketing manager, said: "We comply with all legislation."

He said retailers were encouraged to set prices at a level where they could afford to provide support and service and not just return goods. Seven out of 10 returns were not faulty and he told of a branch of a multiple which returned 12 VICs.

One had a broken key and the second was just a package with no computer inside. The others were not faulty.

Among the reasons for return: the user had not turned on his TV, the TV had not been tuned to the computer, a cassette would not load because the user had not typed LOAD.

He said of Mr Mehdi: "We can't stop him and we would not dream of stopping him. What concerns us is that you get what you pay for. With a packet of cornflakes you just put them in a bowl, pour on milk and eat them. Computers are different."

In any case, he said, retailers the size of Crestmatt would be supplied by one of five UK distributors.

Microtalker is a new speech synthesiser for the Oric, BBC computer and Atom from R.P.S. Electronics. Priced at £46.86, including postage, it uses the GI SPO-256 speech chip and is programmed in BASIC. The unit has a built-in amplifier, volume control and speaker.

R.P.S. Electronics, Unit C200, Saltaire Workshops, Ashley Lane, Shipley, West Yorkshire

You could be on our pages

We welcome programs, articles and tips from our readers.

PROGRAMS must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.

ARTICLES on using home computers should be no longer than 2,000 words. Don't worry about your writing ability — just try to keep to the style in HCW. Articles most likely to be published will help our readers made better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.

TIPS are short articles, and brief programming routines which we can put together with others. Your hints can aid other computer users.

Competitive rates are paid.

Keep a copy of your submissions and include an SAE if you want them returned. Label everything clearly and give a daytime and home phone number if you can.

Paul Liptrot, Home Computing Weekly, No.1 Golden Square, London W1R 3AB

ONE MAN'S VIEW

Rely on the reviewers

Whilst applauding Kevin Irving's motives in trying to improve the general standard and value of commercial software (One Man's View, HCW 41), I was surprised by his almost totally subjective approach. To me, it raises questions as to his effectiveness as a suitable reviewer of software.

Surely the main point on which a potential buyer needs guidance is to what extent the program in question achieves its objectives?

Now if the software is a game then the objective must be to provide fun and entertainment which is rewarding to play repeatedly.

It matters little to "Joe Public" which method is used. Machine code, BASIC or Chinese heiroglyphics, the buyer should be well satisfied if he can repeatedly load it, play it and enjoy it.

It seems that many programmers, while showing off their expertise in producing lightning-fast, machine coded, all flashing "Galaxian Frogging Munchers", miss out completely when it comes to providing intelligent entertainment of lasting value.

For the buyer who is programming-minded, software written in BASIC can often benefit him far more than anything written in machine code. He can get knowledge and pleasure from exploring the structure of the game and seeing how certain effects can be achieved using a language he can readily understand and use.

It is my view that the problem of varying standards and quality is not precipitated by the "cowboys" of the software world, which is anyway more art and motivation than "high tech."

Rather, the probem is brought on the established software houses, bankrupt of ideas, who have a great deal of money staked in the business.

They have to keep coming up with new — and not always worthwhile — merchandise in a similar way that record companies have to "churn out" hit records in order to maintain their existence, hoping their latest product will be the one of their 500 or so which makes it into the Top 10.

It is highly unlikely that a small group of people, however highly skilled in programming, can consistently turn out new and good games with worthwhile difference.

But the pressure is on them to do just that — hence the problem.

My advice to potential purchasers is to take notice only of what the reliable reviewers say about the package, especially those who work for HCW.

Disregard the temptations produced by the glossy advertisements and if it means mail order then so be it.

John Braithwaite
Bournemouth

● This space is for you to sound off about the micro scene, to present bouquets, to hurl brickbats. Share your views by sending them to Paul Liptrot, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Please give your occupation and your interest in computing.

NEWS

Digger

From front page

hours trundling round a demonstration site and digging holes and filling them in aboard a JCB model 3CX. He took away an armfull of brochures and a scale model so he could get the machine's movements just right.

"He had a great time," said the man who came up with the idea, Peter Minshall, of J. C. Bamforth.

He wanted a novel incentive for staff and dealers, but then David Johnson-Davies, 29, managing director of Acornsoft, said he believed it would sell in the shops.

Mr Minshall said: "One of the conditions was that we didn't want the JCB blown up on the screen. In fact in the game the aliens want it!"

He said his 16-year-old son Andrew played the game on his home computer and liked it — but daughter Helen, 13, was not so keen. But she was not as keen on computing.

Mr Johnson-Davies said the game, which will cost £9.95, is unlikely to be available for the Electron, Acorn's lower-priced computer, because it used the BBC's sideways scrolling feature unavailable on the Electron.

Acornsoft, 4A Market Hill, Cambridge CB2 3NJ

TED arrives

From front page

manager, John Baxter, said: "It will have far more commands and, yes, it's incompatible with the other computers — but you can't have it both ways."

The new model was being shown at the Consumer Electronics Show in Las Vegas, but Mr Baxter said that prototype may not be the version to go on sale here.

He said: "There are six options we could take up, ranging from a model with a toy keyboard upwards. But we will not be selling a model with a toy keyboard."

Would the new model hit sales of the Commodore 64 and the VIC-20?

Mr Baxter said: "It depends how we position it in the market and the price. Everyone said the 64 would murder the VIC, but it didn't. The VIC is still on sale and it's selling like hot cakes.

"It will fit into our existing range."

He said magazines often mistook the market to which computers were aimed.

For example, he said, the portable SX64 — now on sale for £895 — was believed to be a business computer.

He said 85 per cent of sales would, in fact, be to home users and to people who used them both at home and at work — as well as companies who gave it to their salespeople and for uses like data entry.

Mr Baxter said: "If it was solely a business computer I would only sell 1,000-2,000 a month. It's horses for courses.

● Simon's BASIC II, adding another 86 commands to the Commodore 64, will go on sale in two months at about £9.95 on tape and £14.95 on disc. It works only with the original Simon's BASIC (114 commands), which is supplied only on cartridge. Commodore says supply problems have now eased.

Commodore, 675 Ajax Ave, Slough, Berks SL1 4BG

Clement Chambers, centre, with Jeff, right, and Jerry Wayne, of ORP

Worlds war — at home

The War of the Worlds will soon be fought out on home computers in a 10-part game based on H. G. Wells' book and an album based on it.

CRL's managing director Clement Chambers has signed a deal with New York company ORP which has the game rights to the book and programmer Nigel Taylor, 15, has started work.

Spectrum and Oric versions are planned for March, followed by Commodore 64, BBC, Electron and Dragon.

CRL, 9 Kings Yd, Carpenters Rd, London E15 2HD

Sinclair's QL micro: all the facts

Paul Liptrot reports

Sinclair's new computer, called the QL and priced at £399, will be in the hands of the first users by the end of next month.

In a major change of direction, the 128K micro is designed for the serious home, business or professional user.

Sir Clive Sinclair and managing director Nigel Searle outlined the main features:

- 128K of RAM with 0.5M expansion to come. Up to 32K is taken for display use
- Two built-in Microdrives, each with a capacity of 100K — about 10K more than standalone Microdrives
- 32-bit Motorola 68008 processor
- Full-size keyboard with 65 shaped keys with audible click. Includes five function keys, four cursor keys
- High-resolution colour display in two modes: 512 by 256 (four colours) and 256 by 256 (eight colours). Text: 85 columns, 25 lines or up to 40 to 60 columns with TV depending on software
- Four software packages included, all written by Psion: QL Abacus, spreadsheet; Archive, database; Easel, graphics; Quill, word processing

Many of the QL's capabilities, like multi-tasking and window display — up to 10 at once on screen — are normally available only at several thousand pounds, said Sir Clive.

Measuring 5⅜in × 1¾in × [illegible]⅛in and weighing just over 1lbs the QL offers ports for networking at 100K baud between 64 computers, dual joystick and ROM cartridges expansion.

RS-232-C interface is provided and RGB and TV ports.

Using the expansion slot up to six QL Microdrives can be stacked — giving 800K maximum.

Based on four semi-custom ICs, the QL incorporates a 32K ROM — containing new QDOS operating system and SuperBASIC, an enhancement of Spectrum BASIC.

Potential expansion is "almost unlimited" due to the Motorola 68008 32-bit processor with its one megabyte (empty) linear address capability.

Peripherals and enhancements, will include: 0.5Mb memory expansion board, Pascal compiler, 68000 assembler, terminal emulator, analog/digital interface, hard disk interface, modem, parallel printer interface with multichannel sound-generator, IEEE-488.

Testing and quality control is now under way at Thorn EMI Datatech, Feltham, where production is scheduled to reach 20,000 units a month by summer. A second source during late 1984 is planned.

The QL is supplied with 1.8 amp power supply, manual (containing a course in SuperBASIC), software on microdrive cartridges, four blank cartridges.

Apart from RGB monitor, power sockets and TV ports, there are nine others: internal expansion (one) Microdrive expansion (one), ROM cartridge (one), serial (two), local area network (two), joysticks (two).

Sir Clive said his company, which now had 60 per cent of the home micro market, had decided to leapfrog to a 32-bit processor — hence QL, for Quantum Leap.

"It will do anything the IBM PC will do and more," he said. And, talking of his approach to the BBC to make the corporation's "official" micro, he said: "We would very much like to redress the balance where our competitor (Acorn) gets massive free publicity."

He pointed out: "Unlike the BBC it (the QL) will not be made overseas in the forseeable future."

Other points:

- Retail sales are to start in the second half of the year along with sales overseas, priced at $499 in the U.S., where it will be sold by Sinclair.
- The QLUB (QL Users' Bureau) membership will cost £35 a year with six newsletters, early offers and software updates.
- The QL has no cassette interface.
- To come: 32K ROM cartridges, Winchester hard disc interface, and Prolog, C and other languages.

Sinclair Research, Stanhope Rd, Camberley, Surrey GU15 3PS

QL SuperBASIC keywords

ABS
ATAN
ACOT
BEEP
BLOCK fill block with specified colour
CAT display catalogue of cartridge in specified Microdrive
CIRCLE
CLOSE flush all buffers
CODE
COPY
COT
CURSOR positions in window
DATES gives time and date from clock backed up by battery
DEFine PROCEDURE
DIMension
EDIT
EXIT
EXP
FOR END FOR
GOTO
AUTO line numbering when entering programs
BAUD rate for both serial channels: 75, 300, 600, 1,200, 2,400, 4,800, 9,600 or (transmit only) 19,200
BORDER
CHR$
CLEAR out variable area
CLS current window
CONTINUE
COS
CSIZE sets character size
DATA
DEFine FuNction
END DEFine
DELETE removes file
DRAW line
EXEC loads sequence of programs and executes them in parallel
FLASH
FORMAT cartridge
GOSUB
END IF
IF THEN ELSE
INK
END REPeat
REMark
PRINT
PLOT
PAUSE
PAPER
OPEN
NEXT
ON GOSUB
NEW
MERGE
LN returns natural log
LIST
LEN
INT
INKEY$
RUN
SBYTES save areas of memory
SCALE for graphics
SELect
SQRT square root
STRIP current strip colour
TAN
UNDER line in current ink
USR
WINDOW create window
REPeat
RND
RESTORE
RANDOM reseeds random number generator
POKE
PEEK
PAN window so left or right
OVER
ON GOTO
MODE
LRUN loads specified Microdrive
LOCAL
LOG to base 10
LOAD
LET
INVERSE
INPUT
SAVE
SIN
SCROLL
END SELECT
STOP
TAB
TRACE
USE channel
WHEN

Taken from the provisional QL user guide

There are two slots for Microdrive cartridges

The new Sinclair QL, 128K and typewriter style keyboard for £399

MOGUL

THE HOTWARE PEOPLE

METAMORPHOSIS

You stumbled into the nest of the **Cyglorx** and find yourself fighting off robot tanks guarding the **Cyglorx eggs**. You think you have everything under control and then the eggs start **hatching**. Commodore 64 version features 4 different screens.

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£7.95

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The creator assembled a massive army of **robots** and **insects** to take revenge on the earth. Destroy insects, get treasures, and get the **neutron bomb deactivator**. Battle robots and **destroy** the neutron bomb before it annihilates your city. Miss and you must face **the mutants**. Features 4 different screens.

COMMODORE 64
£7.95

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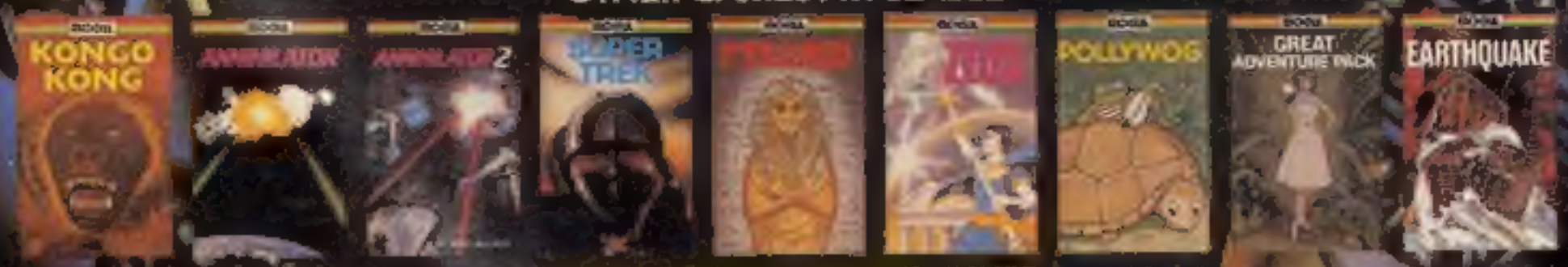

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Spot the differences and win great games from Vortex

You've got 200 chances to win Vortex games — and all you have to do is spot the differences. The tapes are waiting to be sent to the winners, so send us your entry as soon as you can

There's 200 chances to win Spectrum software from Vortex in this week's fun-to-enter competition.

And, like all competitions in Home Computing Weekly, entry is easy and free. Just mark the differences and send the coupon to us.

The prizes

Vortex is giving away Spectrum games worth £1,049 to the prize-winners.

The first 10 winners will each receive copies of the top selling games Android One — The Reactor Run and Android Two. The next 190 winners will each get a copy of Android One.

Android One — The Reactor Run, for either model of the Spectrum, challenges you to destroy the reactor before the reactor destroys the world. Your only weapon is a metallic android. You must blast through brick walls, mazes and strong rooms, dodge moving obstacles and overcome hordes of fiendish mutants. Price: £4.95.

Android Two, for the 48K Spectrum only, pits you against hazards like the maze of death, the paradox zone, land mines and alien life forms, including Millitoids, Hoverdroids and Bouncers.

Both games have fast-action colour graphics, keyboard or joystick option, several levels of difficulty, five lives, and on-screen scoring.

How to enter

Study the two cartoons: there are a number of differences between the two. Circle the differences — in ball-point pen.

Then fill in your name, full address and the number of differences you found.

Cut around the broken lines, seal the drawing with coupon attached in an envelope — and write clearly on the back of the envelope the number of differences you found.

Post your entry to Vortex Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB.

Entries close at first post on Friday February 3. The winners of both games will be the first 10 correct entries opened at random. And the next 190 winners, who each receive one game, will be the senders of the next 190 opened.

You may enter as many times as you wish, but all entries must be on an official coupon — copies will not be accepted — and in separate envelopes.

The solution and the names of the winners will be published in the news columns of Home Computing Weekly and the prizes will arrive from Vortex within 28 days of the publication date of that issue.

The rules

The 10 winners of two games will be the first 10 entries opened after the closing date: Friday 3, 1984. The other 190 winners, who will receive one tape each, will be the senders of the next 190 opened.

Coupons which are not fully completed and envelopes without the number of differences found on the back will not be considered.

Entries will not be accepted from employees of Argus Specialist Publications, Vortex Software and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

The winners' names and the solution will appear in Home Computing Weekly. The editor's decision is final and no correspondence will be entered into.

Vortex Competition

Entry Coupon

Name_____

Address_____

_____

_____

_____ **post code**_____

Number of differences found:_____

Complete clearly — this coupon will be used as a label if you are among the winners. Don't forget to write the number of differences on the back of the envelope as well. Post to: Vortex Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date: Friday February 3

Enter the Atmos, son of Oric

Oric Products is taking on the likes of the Electron with its restyled 48K Atmos computer. How does it compare, both with its parent and with the opposition? Here are the first details

Son of Oric, the 48K Atmos computer, took a bow today. At £170, it has a typewriter keyboard, new BASIC commands and the oddities suffered by its parent removed.

It has a restyled black and red case — with matching colour printer and new 3in disc drive — and BASIC programs are compatible with the Oric.

But a new ROM operating system means machine code programs will have to be changed.

These are the main new features:

Keyboard: 58 keys all with auto repeat, including ESCape, ConTRoL, RETURN and additional cursor keys. A function key may be used by programmers.

Operating system: Oric Products' director of research and development, Dr Paul Johnson, said quirks in early Orics has been removed, along with some in the Microsoft BASIC.

He said: "We have also solved the Microsoft bug in the FRE command and can now give an accurate print-out of available user memory."

Oric says the GRAB command enabled greater use of memory by allowing use of memory usually allocated for graphics. With serial attribute handling this meant at least 44K was available even when printer and disc drives were attached in text mode.

Cassette handling: The Atmos has VERIFY, STORE, and RECALL of arrays (integer, floating point or string) and displays program details like file name and type of file before running.

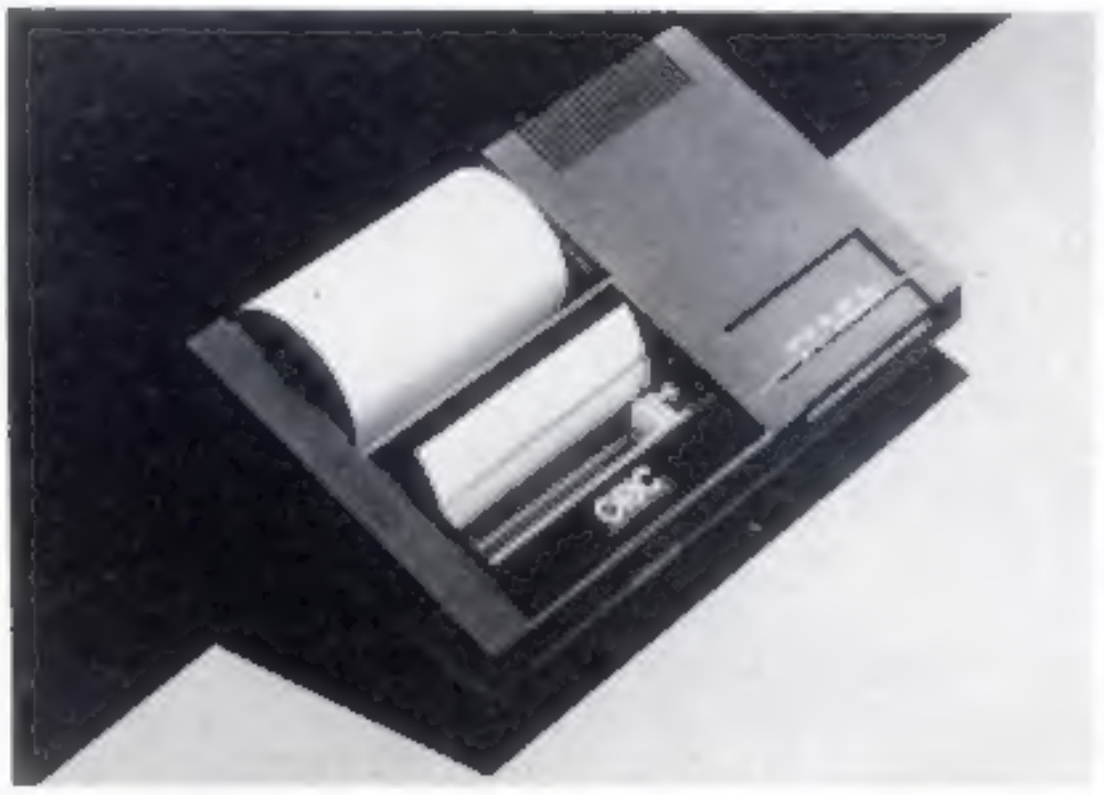
The "welcome" tape includes a machine code program allowing the user to over-ride the error checking facility and auto-run the program.

This, says Oric, overcomes problems caused by errors in the header and leading portion of the tape which have no effect on the program.

Manual: Oric commissioned Pan Books and writers led by Ian Adamson to compile a manual of nearly 300 pages which includes chapters on machine code, system calls, printers and commands and sample programs. And there is also a leaflet for beginners.

Disc drive: Due on sale by the end of the month, the new Oric disc drive is the Hitachi 3in model with double sided, double density discs holding a maximum of 320K. Controller, operating system, case and power supply are added in the UK to the Japanese product.

The Atmos, in re-styled black and red case, shaped a little like Acorn's new £199 micro, the Electron



The Oric Products printer-plotter in its new livery. Already on sale, it uses four tiny ballpoint pens on 4in plain paper rolls. It is similar to Tandy's printer-plotter and those from other companies

One observer who has used the new computer said the internal layout is virtually identical to the

New disc drive for both Atmos and Oric. Based on Hitachi mechanism, each 3in drive can hold up to 320K

Oric-1 and adds commands like Verify and merge which were promised for the first model.

However, the Atmos is said to be about 30 per cent faster, thanks mainly to the re-written routines for screen and keyboard handling.

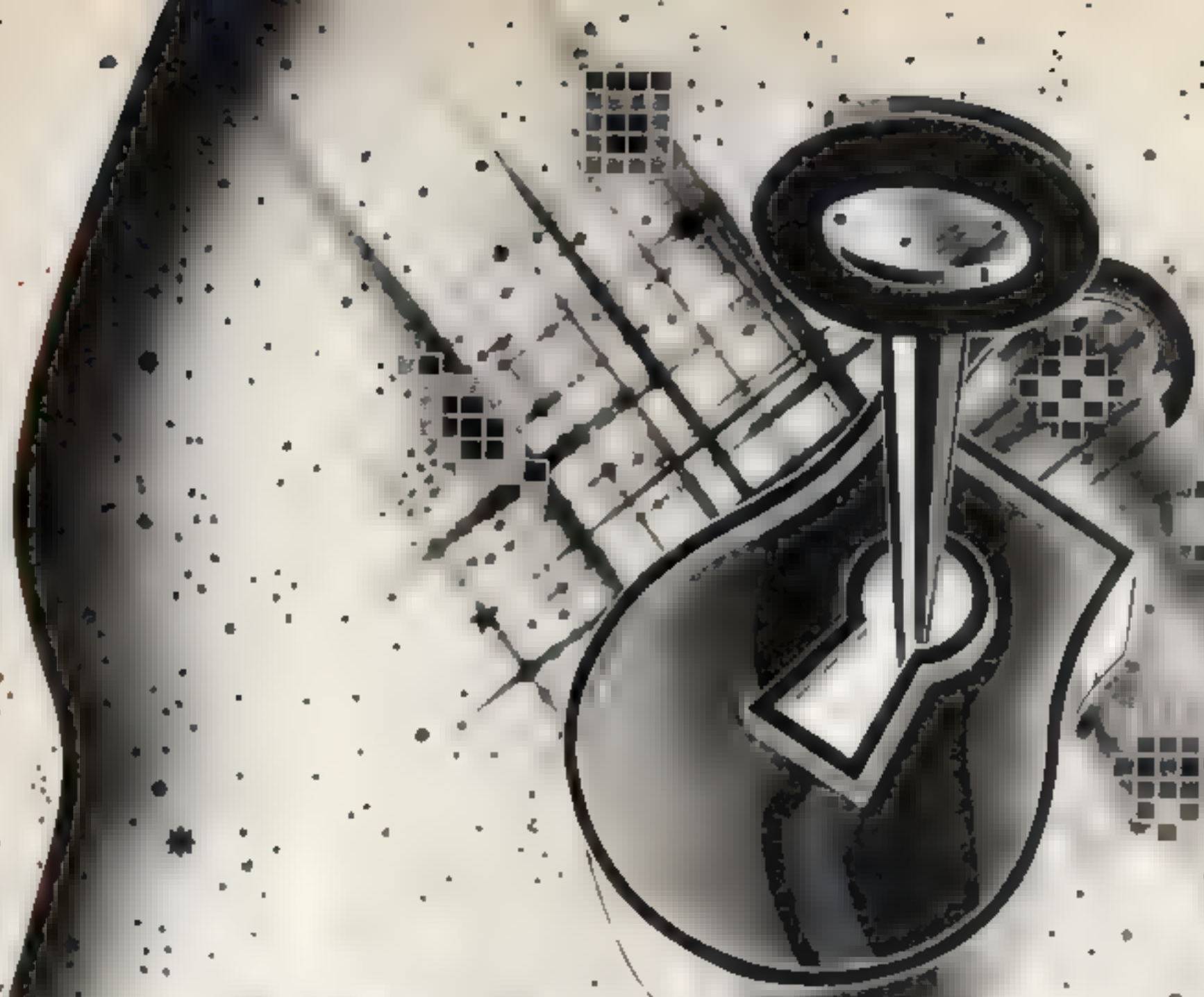
The Atmos, which began production yesterday, was shown for the first time at the Which Computer? Show in Birmingham.

It is exactly the same size as the Oric — 2in high, 11in wide, 7in deep — and even weighs the same: 1.1Kg.

Oric Products International, Coworth Park, London Road, Ascot, Berks SL5 7SE

Atmos BASIC keywords

ABS	AND	ASC
ATN	CALL	CHAR
CHR$	CIRCLE	CLEAR
CLOAD	CLS	CONT
COS	CSAVE	CURMOV
CURSET	DATA	DEEK
DEF	DIM	DOKE
DRAW	EDIT	END
EXP	EXPLODE	FALSE
FILL	FN	FOR...TO
FRE	GET	...(STEP) NEXT
GOTO	GRAB	GOSUB
HIMEM	HIRES	HEX$
INK	INPUT	IF...THEN
KEY$	LEFT$	...(ELSE)
LET	LIST	INT
LN	LOG	LEN
LPRINT	MID$	LLIST
NEW	NOT	LORES
OR	PAPER	MUSIC
PEEK	PI	ON
PLAY	PLOT	PATTERN
POKE	POP	PING
PRINT	PULL	POINT
READ	RELEASE	POS
REPEAT	RESTORE	RECALL
RIGHT$	RND	REM
SCRN	SGN	RETURN
SIN	SOUND	RUN
SQR	STOP	SHOOT
STR$	TAB	SPC
TEXT	TROFF	STORE
TRUE	USR	TAN
WAIT	ZAP	TRON
		VAL



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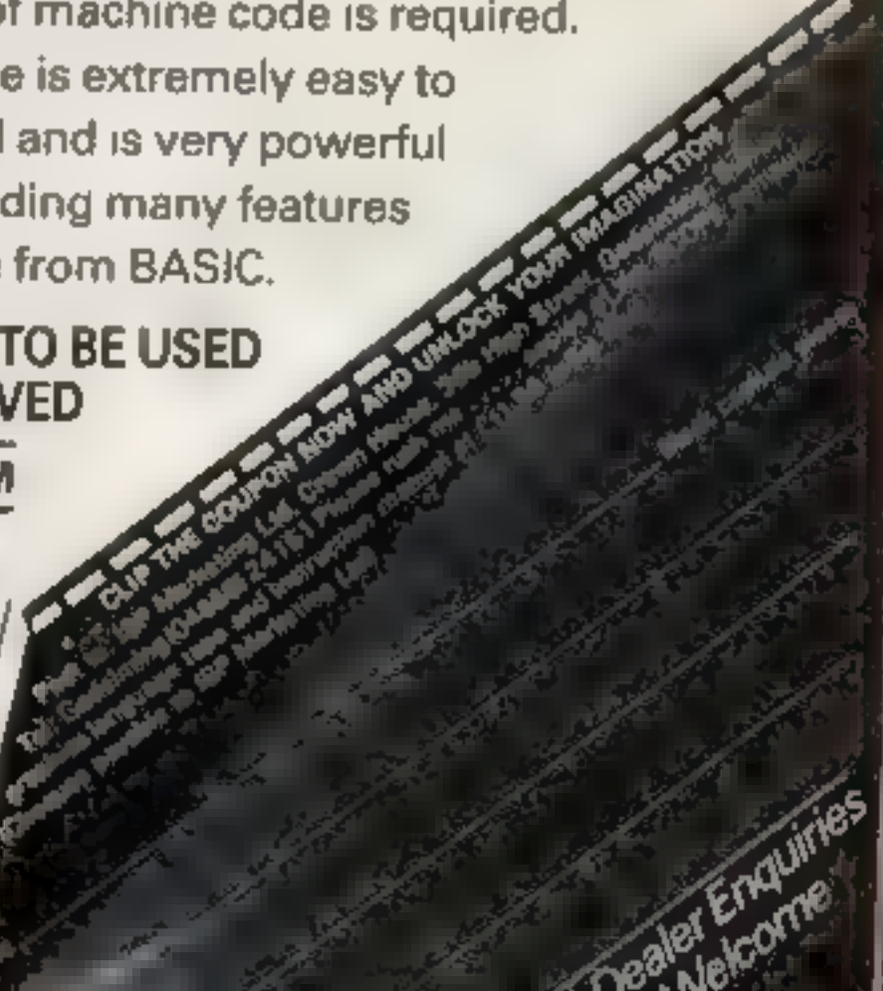
48K SPECTRUM



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The chart-hitting

Mad Martha

Poor little Henry is the hen-pecked hero of this domestic tale. One night Henry can take no more. He steals his wages from his wife's purse, and sneaks out of the house being careful not to wake the baby or trip over the cat, and heads for the bright lights to have some fun. Trouble is he runs out of money. His only way to raise some cash is to gamble his few remaining pounds on the spinning wheel of the roulette table.

Just as Henry is getting in to his evening at the tables his wife — Mad Martha — has noticed his absence. Realising Henry has absconded with the housekeeping she sets out after him with an axe.

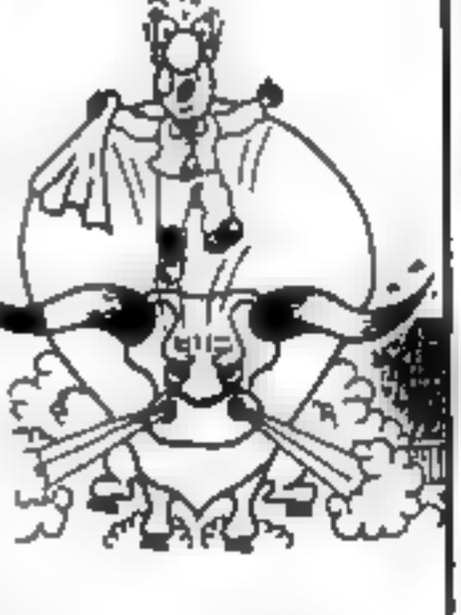
Guess what part you play in this happy tale? That's right, you're Henry. Watch out for that axe.

And now—

Mad Martha II

Time for the annual holiday and Martha decides to visit her half-cousin Manuel, who is a waiter in a plush hotel in Barcelona.

One afternoon, Martha sets out on a bus tour with her son, young Arbuthnot, leaving orders for Manuel to keep an eye on Henry, unbeknown to Martha, crafty Henry has a Spanish pen-pal, and has planned a secret rendezvous. Henry leaves the hotel, brimming with enthusiasm and Manuel (who is totally wacky!) is hot on his trail. The adventure takes us through the thrills and spills of a madcap chase, taking in amongst other delights, a bull fight in which poor Henry is forced to play the leading role. Guaranteed laughs and fun for all the family.



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Popular Computing Weekly

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Confused over cash? Baffled by the bank? Here's help...

Make money more meaningful. This accounts program, by John Marshall and Jarrod Grundhill, will simplify your budgeting

This program, for the 16K or 48k Spectrum, helps you to handle your accounts. It works on a menu basis

To type in an entirely new set of data, enter 1. You are then required to input five values for five possible sources of income These numbers should be in pounds, but it is not necessary to type in a pound sign

How it works

10 set C cursor
20-35 title
40-50 secret code. Entry to the program can only be obtained by typing the correct code, which is stored in line 50 and can be altered
60-180 print out menu
190-250 look at player's choice and act accordingly
800-960 to input a new set of data
1500-1560 PRINT all the data already stored
2000-2020 SAVE all the data for the account on tape
2500-2520 LOAD some data for an account from tape
4000-4040 define string arrays which contain names of items of income and expenditure
5000-5070 change data
9999 stop

The five sources of income are SALARY, CARRIED FORWARD (C.FWD), EXPENSES, MILEAGE and SUNDRIES

These words are contained in line 4010 and can be changed to suit your own requirements, provided no word is greater than eight characters

You then input seven values for seven items of expenditure in the same way. These seven items are MORTGAGE, RATES, INSURANCE (INSU), GAS, ELECTRIC, WATER and ACCESS, and the words are stored in line 4020

The computer then asks you how many extra items of expenditure you wish to include, and you can input any number from 0 to 13. You input these extra items in the same way as the other items of expenditure

Finally, you input the date This can be in any format but must be no more than eight characters. The program then works out the total income, the total expenditure, and the balance

Note: It doesn't matter whether you are working with weekly, monthly or yearly figures

Hints on conversion

The BASIC used in this program is fairly standard. The POKE in line 10 simply sets the C cursor, which makes sure that everything typed in is in upper case. There are no colour statements. The statement FLASH 1 in line 20 is just to make the word "Accounts" flash. Lines 5030 and 5050 contain string slicing.

Option 2 simply prints out the data stored in the computer
Option 3 saves the data on tape
Option 4 loads data from tape
Option 5 is for changing data. To do this, type in the item you want to change just as it is spelled on the screen (i.e don't type INSURANCE instead of INSU) Then you will be asked to enter the new number, and the two totals and the balance will be altered accordingly The date can also be altered in this way, although, of course, it will have no effect on the totals and the balance
Option 6 simply stops the program

Variables

I$() names of different sources of income
E$() names of the different items of expenditure
I() values of sources of income
E() values of items of expenditure
DS() date
C user's menu option
F used for all FOR-NEXT loops
TOT1 total income
TOT2 total expenditure
BALANCE balance
EX extra items of expenditure
YS item to be changed

Put your finger on the action

Five games for fast movers, speed-tested by our review panel

Dracula's Revenge
48K Oric £6.95

Softek, 12/13 Henrietta Street, Covent Garden, London WC2

Climb up and down ladders to avoid the baddies. In this case they are an unpleasant collection of werewolves ghosts and vampires

You are a fearless friar out to sanctify the castle homes of these poor creatures. To do this you must flood the floor of the castle with daylight to kill ghosts and vampires or shoot werewolves with a silver bullet

It's not quite as simple as that, though, and the action can be quite frantic

Excellent use of Oric's colour, graphics and sound combine with some nice animation to produce a good game

I like the facility provided which allows continuous practice without losing your lives However in this mode you will not be able to enter the hall of fame

The standard Oric cursor keys are used for control I find them quite adequate, and wonder why more companies don't standard se on this method

Dracula's Revenge is, in summary, one of the better games around for Oric and should certainly find favour with the games player providing he is not frightened of the dark **P.W.**

instructions	85%
playability	90%
graphics	90%
value for money	85%

★-★-★-★

Hoist
32K BBC £6.95

Your little man climbs up and down ladders in an attempt to grab bags of money without getting nobbled by nasty bank robbers.

The game is very good and had me playing for hours. The instructions were printed on the cassette insert and were easily followed

The bank manager has to collect up the bags of money without being killed by four burglars who sometimes plant time bombs which he has to defuse — no ordinary bank manager.

The graphics and sound are both very good. You can turn the sound off, but if you do, watch out for the bombs or you'll miss the ticking

The only thing I found very annoying was the High Score list To enter initials, you positioned a cursor over the letter then pressed return

More often than not I didn't bother. Why didn't Softspot use the normal Hi-Score input routines around? **J.H**

instructions	95%
playability	95%
graphics	85%
value for money	95%

★-★-★-★-★

Postman's Knock
TI-99/4A £4.95

Lizard Games, 14 Bridgwood, Brookside, Telford

The documentation for this odd game is quite detailed, if unlikely to survive the usual wear and tear of being handled frequently

I always though that Postman's Knock was an excuse for mass lechery, but not so

I assume that the 'knock' in the title refers to the noise of your bike as it invariably hits a tree, but I could be wrong.

The aim is to boldly go and deliver some letters by obliterating the houses to which you deliver, followed by a trip round the postboxes collecting further letters

You have to land on the postboxes in order to collect the post, which probably won't do the bike much good. Then you're off to deliver the post to the Post Office with a subsequent parcel collect on thrown in for good measure.

You are awarded so many points for landing on the right items at the right time, and have them deducted if you don't hit the right things. It is all too easy to compile a negative score by playing chicken with the trees.

The game format is very similar to that of Ski-run-type programs, but it has sufficient additional elements to make it quite amusing — if you have the right sense of humour **P.B.**

instructions	95%
playability	95%
graphics	85%
value for money	70%

★-★-★-★

Robot Riot
48K Spectrum £5.95

Mikrogen, 24 Agar Crescent, Bracknell, Berks

Catastrophe at the robot factory! The robots have all escaped and are wandering around in the corridors and on the many floors of the factory The control room has been taken over by the king Robot.

To deal with this you have to lay bombs along the corridors of the first floor, dodging around teh fire doors which open and close in various places

However, King Robot escapes to the next floor and you have to get to the control room to follow him without being caught by the escaped robots wandering around

The robots have different speeds Some kill you, others just make you weaker, but you can toughen up again by picking up power mites

There is also a time limit: you have to get to the control room before the bombs go off. If you make it, you start again on the next floor

There's a choice of keyboard or Kempston joystick control. The instructions take up so much time that the option to go straight to the game is very necessary

It's really just another m[illegible] game, but well presented and enjoyable **H.C.**

instructions	90%
playability	80%
graphics	70%
value for money	60%

★-★-★

Sheer Panic
Spectrum £5.95

Visions, 1 Felgate Mews, Studland St, London, W6

Goodness knows what Arthur Scargill would make of the working conditions in the Magnetic Quartz mine in a Dromedan Leisure complex.

But I suspect that even his lads would think twice before taking on the nasties in this game

You play a sort of England soccer fan-type role, charging round the mine up and down ladders between different levels digging holes for the poor residents (Dromedaries?) to fall into

When they do, you belt them through the floor with a long handled shovel

Some beasties are tougher and need to be dropped through more than one level. Try to clear each level before you run out of oxygen or get eated!

The game has nine levels of play and is quite a challenge in the later stages

The graphics are fairly good and the Spectrum's limited sound is used well to add to the excitement. Control is by keyboard or Kempton joysticks

Definitely high on addictiveness, and great fun to play. **D.J.**

instructions	90%
playability	90%
graphics	90%
value for money	85%

★-★-★-★-★

SITUATIONS AVAILABLE AT

IMAGINE SOFTWARE LTD is the largest and most successful game software house outside of the U.S.A. with more than 100 staff occupying 19,000 square feet of premises throughout Liverpool, Imagine Software are at the forefront of todays exciting software industry. As a result of Imagines' advanced and imaginative expansion program the following positions have become available. In all cases renumeration is commensurate with ability and seniority and is above industry standards. In many cases a new car and numerous fringe benefits will be part of the package. Relocation assistance will be given to successful candidates wherever needed.

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A knowledge of microcomputer graphics plus excellent artistic skills are the qualifications for these positions.

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or ring for an application form:– **051-236 8100 (20 lines)**

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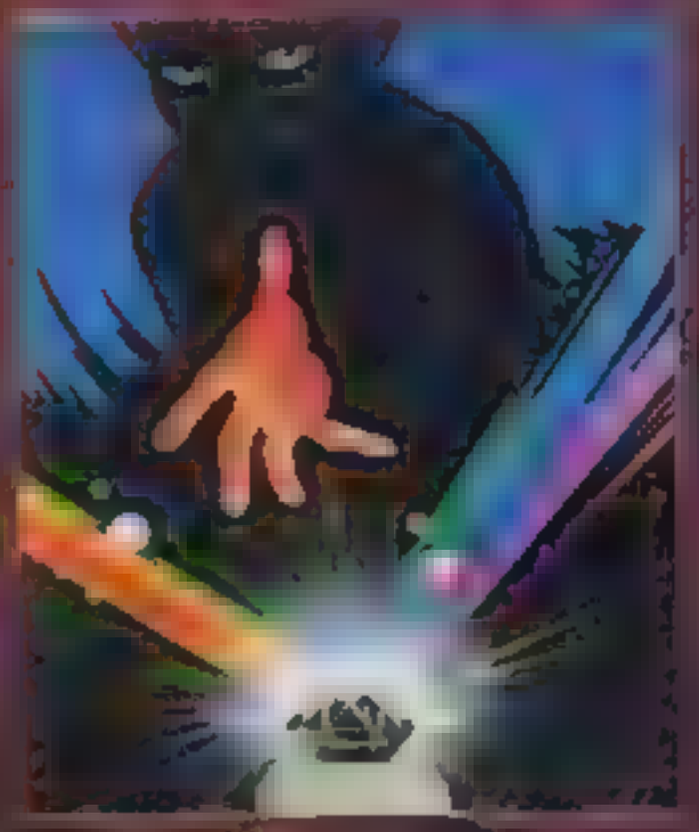

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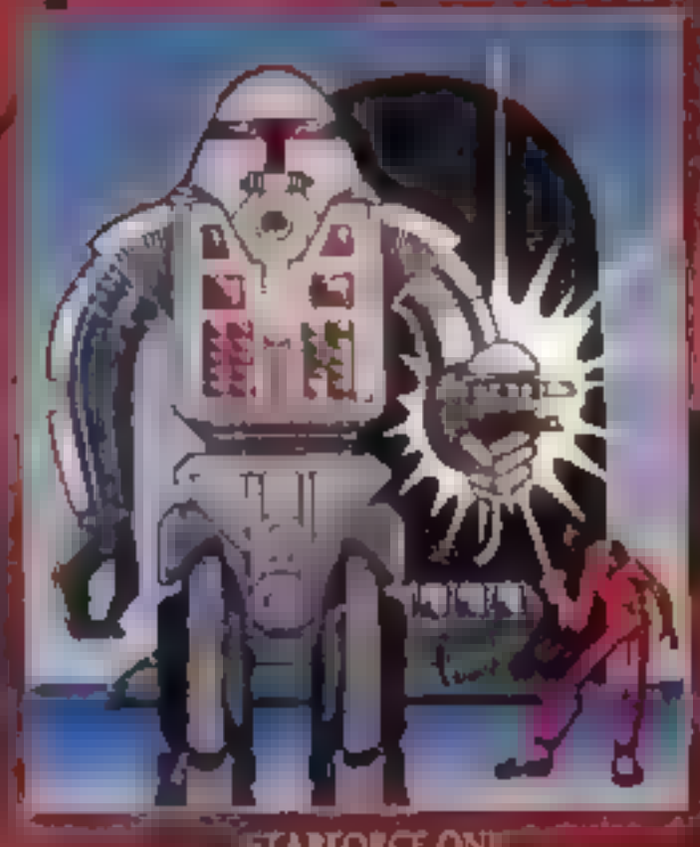

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THE CRYPT

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... now for the 48K Spectrum @ £6.95

THE DEVIL RIDES IN

... a fatal resting in the corner. From out of the shadows they came, all Hell's fury ... horns, behind the battle. Avoiding his bolts of hell fire, I took careful aim. My ... 48K Spectrum £6.95

... Fast machine code, all action. Arcade game ...

RANGE FROM CARNELL SOFTWARE

COMING SOON
THE WRATH OF MAGRA

the Third Continent.

"The Wrath Of Magra" comes as always with

many spells you will be using throughout the game.

NOTE: "The Wrath Of Magra" is a complete

"Volcanic Dungeon" or "Black Crystal" to play it.

Into the Empire
Spectrum
£4.95

Penguin Books, Harmondsworth, Middlesex

The final part of the Korth Trilogy from Puffin featuring the novel concept (no pun intended) of a book to read and a tape to play games from

As in part one, our intrepid hero persons Kane, Louis and Xenia get themselves into tricky situations, two of which are reproduced as games

Fog has friends and foes appearing out of the 'fog' of a blank screen to be zapped at will. Oldren is very, very similar to Raid contained in the first pack, and Empire is a simple economic simulation giving your child the chance to run an empire

As before, lack of error trapping makes the games stop abruptly, BASIC makes them run slowly, and there appears to be a bug in Empire

I cannot honestly enthuse over the contents of this pack, though it's undeniably good value. The concept however is good, and given an imaginative plot, the mixture of computer game and good book could be a winner

Perhaps Puffin should use some existing best sellers and commission a software house to write the games?

D.M.

instructions	60%
playability	60%
graphics	60%
value for money	95%

★-★-★

Extra! Extra! Read all about it

Escape from Arkaron
Spectrum
£4.95

Penguin Books Harmondsworth, Middlesex

Read the book, use the tape and take part in the adventure your self"! says the smart sleeve of this book and game package from Puffin It's part of the Korth Trilogy, a sci-fi series for young people, in which three young members of the Interplanetary Patrol take on the might of the Korth Empire

The book has rather boring looking line drawings and an uninspired text suitable for 10-11 year olds. I enjoy sci-fi, but I couldn't summon up enough interest to read the book all the way through

My nine year old couldn't be bothered after the first page. He just wanted to play the games, of which there are three

Testrun is a crude space flight simulator involving dodging meteors and setting speeds Rather confusing until you get the hand of it, then it's boring

Prisoner is a similarly crude maze game, and Raid is a simplified chess type strategy game

All are principally in BASIC and thus slow, are not error trapped, so they can be brought to a confusing halt quite easily and are about the standard of magazine listings D.M.

instructions	60%
playability	60%
graphics	60%
value for money	95%

★-★-★

Uncle Groucho
48K Spectrum
£10

Automata, 27 Highland Road, Portsmouth, Hants

Another Hidden Prize fun game from the Pimania people. You follow Groucho and the PiMan across the USA, trying to guess which film star Groucho is pretending to be at the moment.

Guess correctly and you get one of the 22 clues to the Mystery Star, whose name wins the prize Mum or gran are essential because the stars are mainly 1940 vintage.

Currency is cigars — 200 to start — and an amusing horserace and Casino offer opportunity to make more.

PiMan does his famous give/take routine and there are the usual unconnected interruptions and really appalling 'I say, I say' jokes

Graphics are excellent — an example of how to use even letters to great effect

After a few plays, the constant beeping of "There's No Business Like Show Business and the delays while the program sorted data, began to be irritating

Interruptions are not as inspired as the Pimania ones, happen too often, and your horse wins at Evens — presumably an Outsizer

And to make it impossible to get the 22 clues in one go (the program goes into an end routine at 18, even if you have cigars in hand) is cheating, particularly as you have to re-load to try again A good try but can do better. D.C.

instructions	2*%
playability	60%
graphics	90%
value for money	60%

★-★-★

Alien Demon/Plague
VIC-20
£6.95

K-tel, 620 Western Avenue, London W3 0TU

It was only a matter of time before the TV demons K-tel became involved in the software game To my delight, they have done so with an unusual idea two programs on one cassette

One odd feature of this tape was that one game requires 8K expansion while the other requires none, so if you have no memory expansion one game will be unusable

The games themselves represent extremes in quality Alien Demon is a neat graphical adventure based loosely on that superb film Alien

The game has some nice graphical touches and is sufficiently difficult to maintain interest For some odd reason however, no sound was used

Plague is a sort of frantic, shoot everything in sight arcade type game which, quite frankly, bores me to tears.

Everything moves too quickly and the screen becomes overloaded with twitching objects (viruses). As usual the idea is to last as long as possible.

Apart from the use of multi-colour mode graphics, this game is utterly forgettable

Overall, the two-game package is good value, but K-tel will have to improve its standards if it wants to succeed in the software jungle A.W.

instructions	40%
playability	60%
graphics	80%
value for money	70%

★-★-★

Castle Colditz/ Battle of the Toothpaste Tubes
48K Spectrum
£6.95

K-tel, 620 Western Avenue, London W3

Two games on one cassette

Castle Colditz is supposedly a role-playing game, with you as the POW trying to escape. You're warned of confrontations with Death, and advised to draw a map

But map making is pretty futile if you can go Up, North and West and finish up where you started And I travelled some 30 rooms without meeting Death or, indeed, any other kind of problem

There are only two problems in this adventure — finding the exit, and finding the enthusiasm to bother

In the second game, you are a toothpaste tube trying to fire paste at a line of scrolling toothbrushes while avoiding missiles from the mini-tubes, and the false teeth that have a biting need to make contact with your

The game starts so fast that I always lost a life, even on the easy level. And although the graphics are nice, your tube is so large that the missiles can hardly miss

Frankly, I've seen better games than these in magazine listings Not very good value even for two D.C

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value for money	30%

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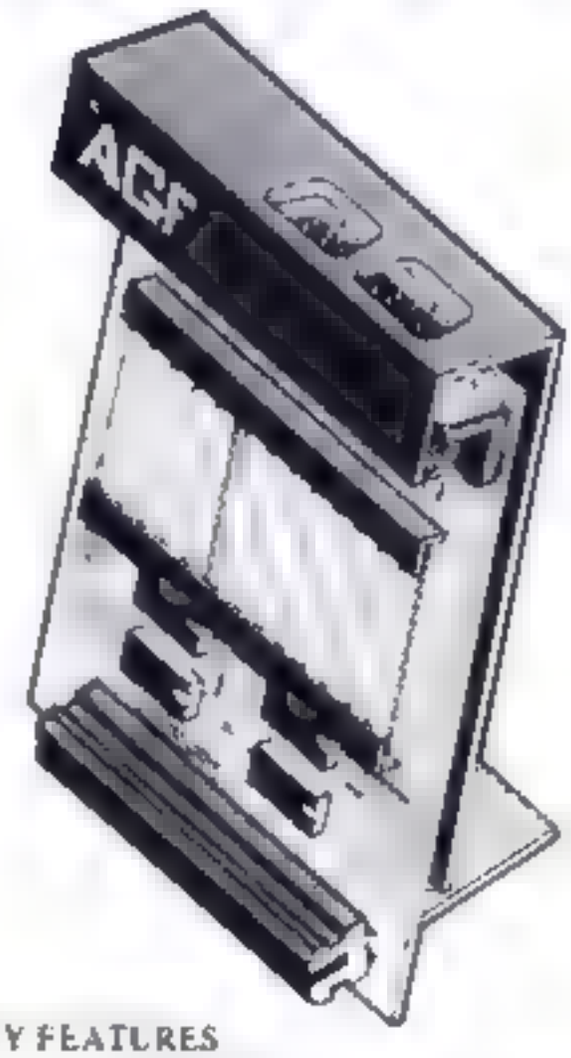
Once configured this can be marked on a Quick Reference Programming Card for storing with the game. As the programming is *not* power dependent the interface retains the last configuration made and can be immediately used when next switched on.



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Get more from your 64 with our Extended BASIC

This week we start a major three-part series by David Rees which adds many new commands to the Commodore 64. Each week's listings can be used on their own

This is the start of a three-part series which will give you extended BASIC on the Commodore 64 with many new commands

The first two parts will give a listing of the machine code — 4K of code in DATA statements in much too long to be swallowed in one go!

The third part will give advanced instruction and example programs.

Each machine code listing in the first two parts contains several useful routines, but the full potential of Extended BASIC is only achieved when they are linked

Be careful, as any mistake in the code may cause loss of the program. So always SAVE the program before you use the code.

To help you find mistakes, a checksum is included. It adds up all the numbers in the DATA statements. If the total is incorrect, some of the numbers are wrong

After the program has been POKEd into memory, the BASIC routine is no longer needed and you can learn to use the commands

This week's listing gives the use of three commands: CLEAR GRAPHICS (CLG), POINT and LINE.

For each command you must first POKE in parameters (part two removes this necessity) and then use SYS to run the command.

CLG is the easiest command to use, having only one parameter

As any of the commands can be used to draw on two separate high resolution screens, a POKE is needed to choose the screen

POKE 869,X accomplishes this, where X is zero or one, and then SYS 49879 runs the command.

POINT draws a point on either screen in normal or multicolour mode. To use it, first X and Y coordinates must be poked into memory. Y is straightforward just POKE a number between zero and 199 to location 862

X is more complex as it has a range of zero to 319. Two locations are POKEd to. 861 contains the first eight bits (e.g. POKE861, XAND255) while the highest bit is POKEd to 860 (e.g. POKE860,X/256).

There are four other registers to be set. First, colour is set by POKEing 857 to the value required.

To gain text mode, add the following command at the end of the program:

POKE56576,PEEK(56576)OR3

Next week: Low resolution plotting, sound and sprite commands — all available from BASIC with no POKEing.

Next, colour choice (zero-1 in normal mode, zero-3 in multicolour) for the appearing colour to be stored in is POKEd to 858. Lastly, screen choice (zero or 1) is POKEd to 869, and Exclusive OR choice (on = 1,off = zero) is POKEd to 871.

Note that these four registers need only be set once. After this, you can draw as many points as you want to, changing registers only when you need to. After this, to draw the point, use SYS49769

Line uses the final four registers of POINT in the same way (except viewed colour which must be renewed with each line), so all that needs to be covered is X and Y choice

Two positions need to be defined (for the two ends of the line), and you only need to POKE to the registeres you are changing

Registers are as follows: **1st point** 828 X high, 829 X low, 830 Y; **2nd point:** 831 X high, 832 X low, 833 Y.

They are used in the same way as point registers. To draw the line use SYS 50544. Note that LINE is unreliable in multicolour mode, so in this case use it as your peril!

The demonstration program shows how to use each command, and also shows how to obtain screen zero. To obtain screen one, add the following features:

POKEV+24,128 POKE56576, PEEK(56576)AND252)+2

Program 1 — the machine code. Type this in first, RUN it, SAVE for safety, then type NEW before entering Program 2. Use the checksum to ensure all the figures are correct. Note: none of the figures in the DATA will be more than 255

```
 1 REM************************
 2 REM*EXTENDED BASIC PRT 1*
 3 REM*   BY DAVID REES     *
 4 REM*      (1983)         *
 5 REM*POINT+CLRG+LINE CODE*
 6 REM* NO SYNTAX BASIC     *
 7 REM*      ENTRY          *
 8 REM************************
 9 T=0
10 FOR M=0 TO 2031
20 READ A:POKE49152+M,A:T=T+A
30 NEXT
```

```
40 PRINT"CHECKSUM=";T;"IT SHOULD BE 209100"
998 REM****** POINT ******
1000 DATA1[illegible]41,248,141,[illegible]
1010 DATA1[illegible]24,237,[illegible]
1020 DATA141,98,[illegible]
1030 DATA[illegible]
1040 DATA[illegible]
1050 DATA[illegible]
1100 DATA1[illegible]41,248,141,95,3
1110 DATA173,9[illegible]24,[illegible]95,3,24
1120 DATA141,[illegible]
1130 DATA[illegible]
1140 DATA[illegible]
1150 DATA[illegible]
1160 DATA[illegible]
1170 DATA[illegible]
1180 DATA173,93,3,74,24,74,24
1190 DATA74,24,141,95,3
1200 DATA173,94,3,41,248,141,99,3
1210 DATA173,94,3,56,237,99,3,24
1220 DATA141,100,3,96
1300 DATA169,0,133,252,173,95,3,168
1310 DATA204,99,3,240,12,24,105,5
1320 DATA144,3,24,230,252,200,24
1330 DATA144,239,133,251,96
```

```
1400 DATA160,,132,254,173,100,3,24,101,251
1410 DATA144,3,24,230,254,200,192,8
1420 DATA208,243,133,253,165,254,160,
1430 DATA24,101,252,24,200,192,8
1440 DATA208,247,24,105,32,24
1450 DATA133,254,96
1500 DATA160,,173,22,208,41,16,201,
1510 DATA208,52,230,252,230,252,230,252
1520 DATA230,252,173,90,3,201,,208,12
1530 DATA177,251,41,240,24,109,89,3
1540 DATA24,145,251,96,177,251,41,15
1550 DATA24,14,89,3,14,89,3,14,89,3
1560 DATA14,89,3,24,109,89,3,24
1570 DATA145,251,96
1580 DATA173,90,3,201,,208,7,173,89,3
1590 DATA141,33,208,96,201,2,208,5
1600 DATA162,240,24,144,18,201,1,208,37
1610 DATA162,15,14,89,3,14,89 3,14,89,3
1620 DATA14,89,3,230 252,230,252
1630 DATA230,252,230,252,168,,177,251
1640 DATA45,13,3,24,109,89,3,24
1650 DATA145,251,96
1660 DATA173,101,3,201,,240,8,165,252
1670 DATA24,105,92,24,144,6,165,252
1680 DATA24,105,216,24,133,252
1690 DATA173,89,3,145,251,96
1800 DATA165,254,24,105,32,24,133,254
1810 DATA160,,173,22,208,41,16,201,
1820 DATA208,9,165,252,24,105,92,24
1830 DATA24,133,252,96
1840 DATA173,90,3,201,,208,1,96 201,3
1850 DATA208,1,96,165,252,24,105,4,24
1860 DATA133,252,96
2000 DATA173,103,3,201,1,240,40
2010 DATA173,102,3,201,1,240,21
2020 DATA169,255,24,237,97,3,141,104,3
2030 DATA160,,177,253,24,45,104,3,24
2040 DATA145,253,96,160,,177,253,24
2050 DATA13,97,3,24,145,253,96
2060 DATA160,,177,253,24,77,97,3,24
2070 DATA145,253,96
2100 DATA173,97,3,10,24,109,97,3,24
2110 DATA141,104,3,173,103,3,201,
2120 DATA240,9,160,,177,253,77,104,3
2130 DATA24,96,160,,169,255,24
2140 DATA237,104,3,24,141,104,3
2150 DATA173,90,3,201,,208,9,177,253
2160 DATA45,104,3,24,145,253,96
2170 DATA201,1,208,13,177,253
2180 DATA45,104,3,24,109,97,3,24
2190 DATA145,253,96,201,2,208,16
2200 DATA14,97,3,177,253,45,104,3
2210 DATA24,109,97,3,24,145,253,96
2220 DATA173,97,3,14,97,3,24,109,97,3
2230 DATA24,141,97,3,177,253,45,104,3
2240 DATA24,13,97,3,145,253,96
2300 DATA173,89,3,141,105,3
2305 DATA173,90,3,141,98,3,173,92,3
2310 DATA201,1,208,9,173,93,3,56
2320 DATA233,64,144,1,96,24,173,94,3
2330 DATA56,233,200,144,1,96,24
2340 DATA169,,141,88,3,173,22,208
2350 DATA41,16,201,,208,6,32,60,192
2360 DATA24,144,8,32,,192,169,1
2370 DATA141,88,3,32,112,192
2380 DATA32,161,192,32,190,192,173,101,3
2390 DATA201,,240,3,32,132,193,32,232,192
2395 DATA173,105,3,141,89,3
2400 DATA173,88,3,201,,240,4,32,242,193
2410 DATA96,32,183,193,96
2499 REM** CLS
2500 DATA169,32,162,64,172,101,3,192,
2505 DATA240,6,162,96,169,64,160,,133,252,169,
2510 DATA133,251,168,145,251,200
2520 DATA208,251,230,252,228,252
2530 DATA208,245,169,4,162,7,172,101,3
2535 DATA192,,240,6,162,99,169,96,160,
2540 DATA133,252,173,33,208,145,251,200
2550 DATA208,251,230,252,228,252
2560 DATA208,245,198,252,169,232
2570 DATA133,251,168,24,173,33,208,145,251
2580 DATA208,208,251,169,216,133,252
2590 DATA162,228,169,,168,133,251
2600 DATA145,251,200,208,251,230,252
2610 DATA228,252,208,245,96
2699 REM*** LINE ***
2700 DATA173,60,3,205,63,3,240,30,169,1
2710 DATA141,79,3,205,60,3,240,9,169,6
2720 DATA141,77,3,141,78,3,96,169,9
2730 DATA141,77,3,169,3,141,78,3,96
2740 DATA173,61,3,205,64,3,208,14
2750 DATA169,255,141,79,3,169,6
2760 DATA141,77,3,141,78,3,96,169,
2770 DATA141,79,3,173,61,3,56,237,64,3
2780 DATA144,12,24,169,9,141,77,3,169,0
2790 DATA141,78,3,96,169,6,141,77,3
2800 DATA141,78,3,96
2900 DATA162,,172,77,3,189,60,3
2910 DATA153,60,3,200,232,224,3,208,244
2920 DATA162,,172,78,3,189,63,3
2930 DATA153,63,3,200,232,224,3,208,244
2940 DATA173,79,3,201,1,240,17,169,
2950 DATA141,74,3,173,78,3,56,237,67,3
2960 DATA24,141,75,3,96,169,1,141,74,3
2970 DATA173,78,3,56,237,67,3,144,5
2980 DATA24,141,75,3,96,206,74,3,24
2990 DATA141,75,3,96
3000 DATA173,71,3,205,68,3,208,11,169,
3010 DATA141,76,3,169,2,141,80,3,96
3020 DATA56,237,68,3,24,141,76,3
3030 DATA173,71,3,56,237,68,3,144,7,24
3040 DATA169,1,141,80,3,96,169,,56
3050 DATA237,76,3,24,141,76,3,169,
3060 DATA141,80,3,96
3100 DATA173,80,3,201,2,208,6,169,1
3110 DATA141,81,3,96,173,74,3,201,1
3120 DATA208,6,169,1,141,81,3,96
3130 DATA173,75,3,56,237,76,3,144,7,24
3140 DATA169,1,141,81,3,96,169,
3150 DATA141,81,3,96
3200 DATA173,84,3,24,109,75,3,144,20,24
3210 DATA141,84,3,169,,238,83,3
3220 DATA205,83,3,208,9,238,82,3,24
3230 DATA144,3,141,84,3,173,83,3,24
3240 DATA109,74,3,144,4,24,238,82,3
3250 DATA141,83,3
3255 [illegible]
3260 DATA173,87,3,24,109,77,3,144,4
3270 DATA24,238,86,3,141,87,3,173,86,3
3280 DATA24,109,76,3,24,141,86,3,96
3300 DATA173,87,3,56,237,77,3,176,3
3310 DATA206,86,3,24,141,87,3,173,86,3
3320 DATA56,237,76,3,24,141,86,3,96
3400 DATA173,75,3,201,,208,9,141,74,3,169,1
3410 DATA141,76,3,96,160,,140,112,3,173,76,3,200
3420 DATA24,109,76,3,144,249,24,238,112,3,170
3430 DATA173,112,3,56,237,75,3,176,4,138
3440 DATA24,144,231,24,234,140,75,3,169,1
3450 DATA141,76,3,169,,141,74,3,141,77,3,96
3500 DATA162,,173,76,3,201,,208,9,141,77,3,169,1
3510 DATA141,74,3,96,160,,140,112,3,173,74,3
3520 DATA201,1,208,2,162,1,173,75,3,208,24
3530 DATA169,75,3,144,15,24,238,112,3,72
3540 DATA173,112,3,56,237,76,3,176,22,104,224,1
3550 DATA208,238,238,112,3,72,173,112,3,56
3560 DATA237,76,3,176,4,104,24,144,213,24
3570 DATA234,104,140,77,3,169,1,141,74,3,169,
3580 DATA141,75,3,141,76,3,96
3799 REM*** MAIN LINE
3800 DATA32,66,195,32,161,195,32,246,195
3810 DATA32,49,196,173,66,3,141,82,3
3820 DATA173,67,3,141,83,3,173,68,3
3830 DATA141,86,3,169,,141,84,3
3840 DATA141,85,3,141,87,3,141,88,3
3850 DATA173,22,208,41,16,201,,240,5
3860 DATA169,1,141,88,3,173,74,3,205,76,3
3862 DATA208,27,173,75,3,205,77,3,208,19
3864 DATA169,,141,75,3,141,77,3
3866 DATA141,76,3,169,1,141,74,3
3868 DATA24,144,17
3869 DATA173,81,3,201,
3870 DATA208,6,32,202,196,24,144,3
3880 DATA32,14,197,24,173,83,3,141,93,3
3890 DATA173,82,3,141,92,3,173,86,3
3900 DATA141,94,3,32,105,194,173,97,3
3905 DATA141,112,3,32,172,199
```

```
3910 DATA173,81,3,201,,240,3
3920 DATA76,196,198,173,80,3,201,,240,3
3930 DATA76,47,199,76,102,199
4000 DATA173,82,3,141,92,3,174,83,3
4010 DATA32,97,196,173,83,3
4020 DATA236,83,3,208,1,96,141,93,3
4030 DATA78,97,3,24,173,97,3,201,
4040 DATA208,27,169,128,141,97,3,165,253,24
4050 DATA105,8,144,3,24,230,254,133,253
4060 DATA230,251,165,251,201,
4070 DATA208,2,230,252,96
4100 DATA173,86,3,141,94,3,32,146,196
4110 DATA173,86,3,205,94,3,208,1,96
4120 DATA141,94,3,41,7,201,,240,3
4130 DATA230,253,96,165,251,24,105,40
4140 DATA144,3,24,230,252,133,251
4150 DATA165,253,24,105,57,144,3,24
4160 DATA230,254,230,254,133,253,96
4200 DATA173,86,3,141,94,3,32,174,196
4210 DATA173,86,3,205,94,3,208,1,96
4220 DATA141,94,3,41,7,201,7,240,3
4230 DATA198,253,96,165,251,56,233,40
4240 DATA176,2,198,252,24,133,251
4250 DATA165,253,56,233,57,176,2
4260 DATA198,254,24,198,254,133,253,96
4300 DATA160,,32,43,198,173,93,3,24
4310 DATA105,1,144,4,24,238,92,3
4320 DATA141,93,3,173,80,3,201,1,208,6
4330 DATA32,82,198,24,144,3,32,139,198
4340 DATA173,94,3,201,255,208,1,96
4350 DATA201,200,208,1,96,173,92,3
4360 DATA201,,240,8,173,93,3,201,64
4370 DATA208,1,96,192,1,240,13,200
4380 DATA173,22,208,41,16,201,,240,3
4390 DATA76,198,198
4400 DATA32,157,199,32,200,194,173,92,3
4410 DATA205,69,3,208,9,173,93,3
4420 DATA205,70,3,208,1,96,76,196,198
4500 DATA238,94,3,173,94,3,32,103,198
4510 DATA32,19,198,173,94,3,201,255
4520 DATA208,1,96,201,200,208,1,96
4530 DATA173,92,3,201,,240,8,173,93,3
4540 DATA201,64,208,1,96
4550 DATA32,157,199,32,200,194
4560 DATA173,94,3,205,71,3,208,202
4570 DATA96
4600 DATA206 94,3 173,94,3 32 160 198
4610 DATA32,19,198,173,94 3,201,255
4620 DATA208,1,96,201,200,208,1,96
4630 DATA173,92,3 201,,240 8,173,93,3
4640 DATA201,64,208,1,96
4650 DATA32,157,199,32,200 194
4660 DATA173,94,3,205,71,3 208,202
4670 DATA96
4700 DATA160,,177,251,45,95,3,24
4710 DATA109,89,3,24,145,251,96
4720 DATA173,22 208,41,16 201 ,208,30
4730 DATA173,90,3,201,,208,6,169 240
4740 DATA141,95,3,96,173,89,3 10,10 10
4750 DATA10,24,141,89,3 169,15,141,95,3
4760 DATA96 173,90,3 201,,240,11,201,2
4770 DATA240,222,201,1,208,218,24
4780 DATA144,221,169,255,141,95 3,169,
4790 DATA141,89,3,96
```

Program 2 — the BASIC program. Type NEW after entering Program 1, then key in Program 2, SAVE, the RUN

```
9 REM*DEMONSTRATION PROGRAM*
10 V=53248
19 REM*GET INTO MODE*
20 POKEV+24,31 POKEV+17,PEEK(V+17)OR32
29 REM*CLG*
30 POKE8[illegible],0 SYS49[illegible]
39 REM*POINT*
40 POKE858,1 POKE[illegible] 5
50 POKE870,1 POKE871,0
100 FORN=0TO319STEP2
110 [illegible]=N Y=100-90*SIN(N/[illegible]0.929
120 POKE860,Y-256*INT(Y/256) POKE861,Y AND255 POKE862,Y
130 SYS49[illegible]69
140 NEXT
199 REM*LINE
200 FORN=0TO199STEP4
210 POKE828,0 POKE829,10 POKE830,100
220 POKE831,1 POKE832,10 POKE833,N
230 POKE857,7 SYS50544
240 NEXT
250 POKE871,1 POKE858,0
260 FORN=0TO199STEP4
270 POKE828,1 POKE829,10 POKE830,100
280 POKE831,0 POKE832,10 POKE833,N
290 POKE857,2 SYS50544
300 NEXT
390 REM*BACK TO NORMAL*
400 GETA$:IFA$=""THEN400
410 POKEV+17,PEEK(V+17)AND223
420 POKEV+24,21
```

Micro Tip — Oric

Make a hi-res window

This short routine enables you to put a high resolution window on to the text screen

One application of this would be to create multi-coloured characters, by putting the left-hand attribute column into hi-res.

It's not a good idea to use the lower half of the screen for hi-res, since this contains the character set while in text mode

Steven Green

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Quadrablitz TI-99/4A £6

Stainless Software, 10 Alstone Road, Stockport, Cheshire

Quadrablitz is a reproduction of the traditional game of Bagatelle, with four different variations.

The first game is called Mine-Field. First of all, the deflector is positioned, then the strength of the shot is chosen and the ball is fired.

When the ball rebounds from the deflector, it moves across the screen and explodes any mines which it hits. Each round consists of five shots and each shot ends when the ball hits the bottom of the screen.

In game two, Colour-Connect, bollards of the same colour have to be hit in sequence.

In the third game, Pin-Ball, the ball has to be deflected to hit pins.

Game four, Breakthrough, is a combination of Mine-Field and Pin-Ball, the only difference being that the pins don't score points. They just deflect the ball, hopefully, onto the mines.

A nice feature of the program is a Medley option, which enables the player to play one round of each variation.

This game is not really for those who like fast action, but may suit you if you enjoy a more leisurely pace. **J.J.**

instructions	80%
playability	60%
graphics	90%
value for money	70%

★-★-★

The perfect partner?

Do people laugh at you when you play snooker? Does your bridge game leave a little to be desired? Your micro can make a sympathetic partner — with the right software

Knockout Spectrum 48K £6.95

Mikrogen, 24 Agar Crescent, Bracknell, Berks

Knockout is an electronic version of shove-halfpenny, with all the good features of the original game, but played on a course which doubles back on itself.

The clear instructions ask for the names of up to four players, and the crooked bowling alley which is the course then appears.

The players each have four balls which they play in turn, trying to leave them in the marked areas for the maximum score.

Like shove-halfpenny, balls already played may be hit to change their scores or pushed off the course.

A prompt appears to tell you when it's your turn, and you set up the starting position, direction and strength of throw.

The ball then hurtles down the course, bouncing and scattering other balls with great realism.

Four balls each player makes a frame, and up to nine frames a game. The score, ball and frame numbers are displayed during play and after each frame.

This is an excellent game, simple but very good fun to play. **H.C.**

Instructions	80%
playability	90%
graphics	70%
value for money	70%

★-★-★-★

Snooker 32K BBC £7.95

Visions, 1 Felgate Mews, Studland Street, London W6

This is the second Snooker program I've seen for the BBC machine, the other being Acornsoft's version.

There is no doubt that this is an excellent implementation of the game, with most of the features you would expect.

One advantage it has over Acornsoft's is the ability to practice on your own. This is useful, as finding another computer crazy snooker enthusiast is not always easy!

It also has a foul ball feature which is missing from the Acornsoft version.

The use keys or joystick is common to both versions although I think the key layout is easier on this game.

I am certain that the selection of colours is much simpler, but the strength of shot is more difficult to control.

This is all well and good if the game is good and interesting, and it is.

The only quibble I do have is that the movement of the balls is a little less fluid than I would like. You can get the impression that you are playing Croquet, not Snooker! **D.C**

instructions	70%
playability	80%
graphics	95%
value for money	80%

★-★-★-★

Snooker CBM-64 £8.95

Visions, 1 Felgate Mews, Studland St, London W6

The opening sentence in the program instructions says:— "Snooker (a load of balls)" — my words exactly.

The write-up on the inlay card would have me believe that the game is both fun to play and capable of teaching me more than a three-year course at the local poly. Having seen the program, I have to disagree.

The game comes with sufficient instructions to get you going. All aspects of play are covered.

You may play a one or two player game and use either 10 or 15 red balls. Once this has been selected you position the white ball and start playing.

The game has features for changing the screen colours, aborting the game, deleting balls during play, specifying colours, adding spin to the ball and selecting the power level.

All these features would be nice on a good version of snooker but this game hardly constitutes such a description.

The graphics are slow, flicker, and are wildly inaccurate. A lot of control over nothing leaves you with nothing, as this game demonstrates.

This game is just another version of snooker on a computer. There's nothing much going in its favour, because the game is so inaccurate. **K.I.**

	60%
instructions	35%
playability	45%
graphics	35%
value for money	

★-★

Bridge Player 48K Spectrum £8.95

CP Software, 17 Orchard Lane, Prestwood, Great Missendon, Bucks

It's many years since I last played bridge, mainly because I could never find a partner who would tolerate my indifferent play. At least I have a partner that not only puts up with bad play, but doesn't drink my whisky!

For those of you who understand such things the inbuilt bidding system is ACOL, but if you open using either Stayman or Blackwood conventions, then the computer will respond accordingly.

After the cards have been dealt you have two options. Option 1 is the normal bridge game in which you are South, and dealing is rotated as normal.

Bidding is exactly as the normal game, though if you underbid you may be told that you and your partner have a majority of points. This leads to the option of either re-bidding, or abandoning the hand.

The second game option allows you to see all four hands, and you are given the opportunity to make one bid, and nominate the declarer. The option is then open to you to play all four hands, or just the declarer's and dummy's hands, with the computer playing the defender's hands.

A very entertaining game, but it's not true that you can abandon the game during play, as the inlay states. **B.B.**

instructions	100%
playability	100%
graphics	100%
value for money	100%

★-★-★-★-★

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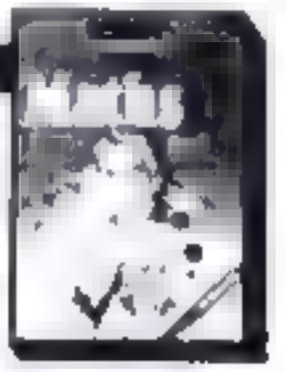

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Shapes you can see in 3D

You can create shapes on the screen and then see all three dimensions with J. D. Peel's program for the VIC-20 with Super Expander cartridge

How it works

100-170 accepts data from keyboard regarding co-ordinates of flat shape. Sets up arrays in part

180-200 perform the calculations involved in setting up the z-axis co-ordinates and completing the working array

205 sets up a second array to store the original data

210-290 cause the figure to be displayed on the screen in hi-res mode

300-330 accept data regarding angles of rotation, in degrees, and convert this data into radians for the computer

340-450 draws the 3D representation after the various rotations have been calculated by the subroutines

455 & 460 reset the original co-ordinates and clears the graphic screen ready for another run through the turning procedure

The three subroutines adjust the screen co-ordinates of the specified points. Each subroutine deals with rotation in a different plane

Although most people think of a prism as being a piece of glass of triangular cross-section the complete meaning of the word is any object which has a cross-section which remains constant throughout its length.

Hints on conversion

The x and y co-ordinates of the VIC-20 hi-res screen are both 0-1023. Other configurations would still work.

The VIC screen is wider than it is high and the program makes corrections for this in line 1120 by multiplying by (7/10). A square screen format would require no such adjustment and other oblong formats would require different correction ratios.

Lines 210,290,345 and 460 set the graphic mode on the VIC with Super Expander and lines 270 & 440 mix text and hi-res on the screen. On other machines these lines will have to be altered.

This program allows the user to define a flat shape (square, oblong, triangle, hexagon etc.,) and a length and then turn the prism so defined in any/all of three planes to get a three dimensional representation. It is written for the VIC-20 with Super Expander cartridge

The plane figure which is to be the cross section of the prism must be defined in terms of screen co-ordinates (i.e. x = 0 to 1023 & y = 0 to 1023)

The fact that the screen is not square should be ignored when defining co-ordinates as correction is made in the program. You must, however, be careful to ensure that, during rotation, no co-ordinate will go beyond the limits of 0 and 1023. For example, if the length of the prism is set at 1000 and the z co-ordinate of the pivot point is 600 then a 90 degree rotation would move the whole face of the prism to 1100 — ie, off the screen — since the pivot point is not central

Example to run: The program asks for x and y co-ordinates in turn after asking for the number of points to be defined. Try the following responses:

VIC prints	You type
NUMBER OF POINTS	4
X CO-ORD	300
Y CO-ORD	300
X CO-ORD	700
Y CO-ORD	300
X CO-ORD	700
Y CO-ORD	700
X CO-ORD	300
Y CO-ORD	700
DEPTH	400
PIVOT POINT(X,Y,Z)	500,500,500

You should obtain a square on the screen which can then be turned in any/all of three directions to obtain a 3D representation of a cube.

Variables

In 3D work any point can be defined by 3 co-ordinates say (x,y,z). These co-ordinates are stored in two arrays **A(N,2)** and **B(N,2)**.

N is the number of points specified and is input at the start of the program

P1,P2 & P3 are the x,y,z co-ordinates of the chosen pivot point.

T1,T2 & T3 are the angles of rotation in the three planes

X & Y are transient variables used during the actual rotation calculations.

```
100 DIM A(20,2),FF$(3),D$(3):E=10:
110 INPUT"NUMBER OF POINTS";N
120 FOR I=1 TO N
130 INPUT"X CO-ORD";A(I,0)
140 INPUT"Y CO-ORD";A(I,1)
150 NEXT I
160 INPUT"DEPTH";D
170 INPUT"PIVOT CO-ORDS";P1,P2,P3
180 FOR I=1 TO N
190 A(I,2)=(A(I,0)-P3)*D/E:A(I,0)=A(I,0)+(A(I,0)-P3)*D/E:A(I,1)=A(I,1)+(A(I,1)-P3)*D/E
200 NEXT I
205 FOR I=1 TO N*2:B(I,0)=A(I,0):B(I,1)=A(I,1):B(I,2)=A(I,2):NEXT I
210 GRAPHIC2
215 SCALE,1020
220 PRINT#1,A(1,0);A(1,1)
230 FOR I=2 TO N
240 DRAW#1 TO A(I,0),A(I,1)
250 NEXT I
260 DRAW#1 TO A(1,0),A(1,1)
270 CHAR#0,0,1,"PRESS <KEY>"
280 GET#0,A$:IF A$=""THEN 280
290 GRAPHIC 0
300 INPUT"VERT TILT";T3
310 INPUT"HOR ROT";T2
320 INPUT"SCR.PLANE ROT";T1
330 T1=(T1*180/PI)*7/10:T2=T2*180/PI:T3=T3*180/PI
340 GOSUB 2000:GOSUB 3000:GOSUB 1000
345 GRAPHIC2
350 PRINT#1,A(1,0);A(1,1);
360 FOR I=2 TO N
370 DRAW#2 TO A(I,0),A(I,1)
380 NEXT I
385 DRAW#2 TO A(1,0),A(1,1)
390 DRAW#2 TO A(N+1,0),A(N+1,1)
400 FOR I=N+1 TO N*2
410 DRAW#2 TO A(I,0),A(I,1)
420 NEXT I
425 DRAW#2 A(N*2+1,0),A(N*2+1,1) TO A(N+1,0),A(N+1,1)
430 FOR I=1 TO N:DRAW#1,A(I,0),A(I,1) TO A(I+N,0),A(I+N,1):NEXT I
440 CHAR#0,0,1,"HIT ANY KEY"
450 GET A$:IF A$=""THEN 450
455 FOR I=1 TO N*2:FOR J=0 TO 2:A(I,J)=B(I,J):NEXT J,I
460 GRAPHIC0:GOTO 300
1000 REM**SCREEN PLANE**
1100 FOR I=1 TO N*2
1110 X=A(I,0)-P1:Y=A(I,1)-P2
1120 A(I,0)=X*COS(T1)-Y*SIN(T1)+P1
1130 A(I,1)=INT(X*SIN(T1)+Y*COS(T1)+P2
1140 NEXT I:RETURN
2000 REM**SIDE PLANE**
2100 FOR I=1 TO N*2
2110 X=A(I,2)-P3:Y=A(I,0)-P1
```

```
2120 A(I,2)=INT(X*COS(T2)+Y*SIN(T2)+P3
2130 A(I,0)=INT(X*SIN(T2)+Y*COS(T2))+P1
2140 NEXT I:RETURN
3000 REM**VERT.PLANE**
3100 FOR I=1 TO N*2
3110 X=A(I,2)-P3:Y=A(I,1)-P2
3120 A(I,2)=INT(X*COS(T3)+Y*SIN(T3))+P3
3130 A(I,1)=INT(X*SIN(T3)+Y*COS(T3))+P2
3140 NEXT I:RETURN
```

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Music while you work with the Beeb

While Geoff Turner was writing our Rudolph's Nose program — it appeared in the Christmas issue — he developed a method to show graphics and play music simultaneously on the BBC micro. Here he expands on how it's done, with six programs to try

Many computer programs particularly games, can be enhanced by the addition of some music. Some computers, when generating sound effects, however simple, will cause a halt or delay in the normal processing of the program

With the BBC microcomputer's extensive sound handling features, however, it is possible to produce continuous music while the computer appears to process the main program

It will seem that the computer is performing two tasks at the same time. This is untrue, of course, as the CPU can only handle one job at any one time

Nevertheless, it is possible with some careful programming to produce an interaction between the sound processing and the main program processing

This article is not concerned with the production of sound effects using SOUND and ENVELOPE commands, as these have been well documented in other articles. I do hope to show you however, how you may use these musical effects to improve your game or other programs

Each sound channel on the Beeb has a small area of memory allocated to it for use as a storage or buffer area

When a SOUND command in BASIC is executed, it does no more than pass data relating to the sound effect into the buffer area. The sound is not actually activated by this command, but is taken care of by the CPU during interrupt periods when it services the sound generator chip

If we try to pass a continuous stream of data into the sound buffer, we soon run into problems, as the storage area is very small and can only store data for five notes.

When the buffer becomes full, the BASIC interpreter cannot handle the situation, and it must therefore wait until space is available in the buffer. The program execution will therefore be suspended for a short time until each SOUND command can be executed

To demonstrate how this situation effects the running of a program, enter and run **program 1**. This program is a simple loop which prints the time between each cycle of the loop

You will see that for the first six cycles the time is very short and almost constant However, in the seventh cycle the time is greatly increased because the sound buffer has become full and the program execution is delayed

You may also notice that the shift lock light on your keyboard is flashing on. This is an indication that a buffer is full and program execution has halted

Obviously this situation is unacceptable, particularly where speed is an important factor in your game. To improve our program we need to examine the sound buffer to see if there is room for more data

If space is available we can then execute a SOUND command. If the buffer is full then we bypass the SOUND command and resume normal processing

If you are reasonably familiar with the BBC computer, it will come as no surprise to you to know that we can access one of the built in operating system routines to check the sound buffer status. We can use OSBYTE call 128 in our programs to test for space in the buffer

Unfortunately it is not possible to use *FX 128 from within BASIC because *FX may only be used to send information to the operating system

If, as in this case, we require information back from the O S then we must use the equivalent OSBYTE call from within a machine code program Don't worry if you have not yet mastered machine code on your Beeb, as we only need to use a very short routine which can easily be set up using the computers built in assembler

Program 2 is the machine code sub-routine. Those of you who are familiar with assembler language may skip this explanation of how it works

Line 30 sets the variable P% to &D00. This informs the assembler where it should place the machine code routine in memory. Having entered the assembler at line 40 we take OPT 3 which instructs the program to display the assembled listing and also report any errors

When you are satisfied that the program works correctly then this can be substituted with OPT 0, (no error reports or listing). Line 60 disables interrupts to prevent data leaving the buffer whilst this routine is running. Line 70 loads the accumulator with 128 and line 80 loads the X register with 250.

These two values are then passed to the OSBYTE routine at address &FFF4 Note that the value 250 is relevant to sound buffer number one A full list of values for other buffers is given on page 430 of the User Guide

Having completed its interrogation of the sound buffer, the OSBYTE routine returns a value into the X register Line 100 stores this value in location &70. The routine is terminated by the RTS instruction and line 120 returns us to BASIC.

When we wish to know the current status of the sound buffer, we can thus CALL the machine code at &D00 and then examine the contents of address

Program 1 — times each cycle of a loop

```
10 REM PROGRAM ONE
20 FOR loop=1 TO 15
30    TIME = 0
40    SOUND 1,-15,50+loop,20
50    PRINT "LOOP ";loop;" time ";TIME
60    NEXT loop
```

Program 2 — machine code sub-routine

```
10 REM PROGRAM TWO
20 REM MACHINE CODE ROUTINE
30 P%=&D00
40 [
50 OPT 3
60 SEI
70 LDA #128
80 LDX #250
90 JSR &FFF4
100 STX &70
110 CLI
120 RTS
130 ]
```

Program 3 — PROCedure to check and update sound buffer

```
10 REM PROGRAM THREE
20 REM PROCMUSIC
30 DEFPROCmusic
40 CALL &D00
50 IF ?&70 = 0 THEN ENDPROC
60 SOUND 1,volume,pitch,duration
70 ENDPROC
```

&70 To enable continuous music in our programs, we must make regular checks on the buffer status.

The best way to accomplish this would be to write a PROCedure to check and update the sound buffer **Program 3** shows a suitable PROCedure. Assuming that the machine code has been assembled in an early section of the program then we can CALL the routine from within the PROCedure. Line 50 uses the indirection operator to check the contents of location &70.

If a value of zero is stored then there is no space in the buffer so the PROCedure is ended without further ado.

If, however, a value greater than zero is returned then space is available and the next note can be added to the buffer at line 60 before the PROCedure is terminated

Program 4 — loops to call PROCmusic

```
 10 REM PROGRAM FOUR
 20 REM DELAYS AND LOOPS
 30
 40 REPEAT
 50    X=X+1
 60    PRINT X
 70    PROCmusic
 80    UNTIL X=20
 90
100 FOR delay =1 TO 10
110    PROCmusic
120    NEXT delay
130
140 PRINT "PRESS SPACE BAR"
150 PROCmusic
160 IF NOT INKEY(-99) THEN 150
```

To ensure a continuous supply of data into the buffer, it is necessary to call PROCmusic at regular intervals. To a certain extent, this is largely a trial and error situation. Too many calls to PROCmusic will slow down the main program unnecessarily, whilst too few calls will result in gaps in the music.

As a general guide, PROCmusic must be called within any type of loop Some examples are listed in **program 4.** REPEAT UNTIL loops and FOR...NEXT loops or any other kind of delay must always incorporate PROCmusic.

There is one occasion where the continuous flow of music will come to a grinding halt

When an INPUT or GET statement occurs, program execution is halted until data is entered by the user. At this point it is impossible to call PROCmusic, and the buffer will eventually empty itself and the music will stop. To get around this problem avoid use of INPUT or GET in the program, and use alternative methods to enter information

By careful use of the INKEY function we can achieve the same result as INPUT whilst at the same time allowing PROCmusic to be called.

Take, for example, the situation where a player's name is to be entered. This is a common requirement in games programs and it would normally be taken care of by an INPUT statement. **Program 5** shows how INKEY$ can be used effectively.

The NAME$ is initially set to a null string, and then a REPEAT loop is entered to allow the player to enter each letter of the name into the INKEY$. Each letter is added to the NAME$, UNTIL a RETURN is entered. PROCmusic is called either after every letter is entered or when the time delay in the INKEY$ function has ended.

The delay in INKEY should be suitably short so as to prevent gaps occurring in the music. Using this method, the user may enter his name or indeed any other information into the program while the music continues to play.

Program 5 — how to use INKEY$

```
 10 REM PROGRAM FIVE
 20 REM DEALING WITH INPUT
 30
 40 PRINT "ENTER NAME"
 50 Name$ =""
 55 *FX15,1
 60 REPEAT
 70    I$=INKEY$(5)
 80    PROCmusic
 90    PRINT I$;
100    Name$=Name$+I$
110    UNTIL ASC(I$)=13
120 PRINT
130 END
```

Finally, **program 6** demonstrates the effect by playing some music while a few graphic routines are executed.

In this demonstration program, three sound channels are used so it is necessary to check the status of all three buffers. The machine code routine is therefore extended to make three OSBYTE calls. In PROCmusic it is now necessary to make checks on three storage locations at &70, &71 and &72.

The data for the music consists of pitch and duration values for each note of the melody. These values are read into an array at lines 230 to 260 and are played in a continuous loop.

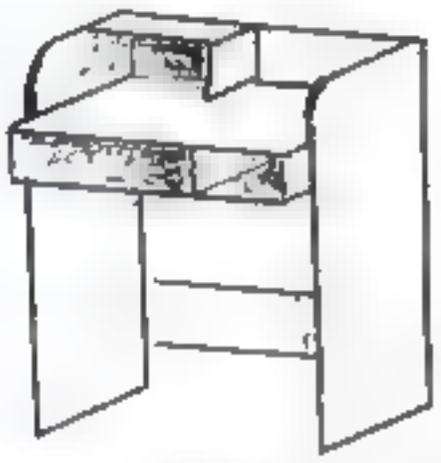
The graphics routines in program 6 are not synchronised in any way to the music.

Program 6 — demonstration of combined music and graphics. The tune Do Reh Mi is played on three channels simulating piano, guitar and drums in harmony

```
 10 REM MACHINE CODE
 20 P%=&D00
 30 [
 40 SEI
 50 LDA #120
 60 LDX #250
 70 JSR &FFF4
 80 STX &70
 90 LDA #120
100 LDX #251
110 JSR &FFF4
120 STX &71
130 LDA #120
140 LDX #249
150 JSR &FFF4
160 STX &72
170 CLI
180 RTS
190 ]
200
210 REM READ IN MUSIC DATA
220 DIM P(56),D(56)
230 FOR I=1 TO 56
240   READ P(I),D(I)
250   NEXT
260
270 REM SET UP ENVELOPES
280 ENVELOPE 1,1,0,0,0,0,0,0,126,-4,0,0,126,100
290 ENVELOPE 2,1,0,0,0,0,0,0,126,-20,-20,-20,126,60
300 ENVELOPE 3,1,0,0,0,0,0,0,126,-10,-5,-2,126,126
310 I=0
320
330 REM GRAPHICS ROUTINES
340 MODE 2
350 REPEAT
360   FOR T=1 TO 50
370     PROCmusic
380     GCOL 0,RND(15)
390     MOVE 640,512
400     MOVE RND(1280),RND(1024)
410     PLOT 85,RND(1280),RND(1024)
420     NEXT
430   CLG
440   FOR T=1 TO 50
450     PROCmusic
460     GCOL0,RND(15)
470     X=RND(1280):Y=RND(1024)
480     R=RND(300)
490     MOVE X,Y
500     MOVE X,Y+R
510     PLOT 85,X+R,Y+R
520     MOVE X+R,Y
530     PLOT 85,X,Y
```

```
 40        NEXT
 50      CLS
 60      MODE5
 70      PRINTTAB(
 80        PRINT"
 90        COLOUR 0:COLOUR
100        MOVE RND(      ),RND(      )
110          DRAW RND(      ),RND(      )
120        NEXT
130      END
140
150  PROCBALL
160
170  REM MOVE TO RANDOM POSITION
180  DEFPROCBALL
190    X=RND(      ):Y=RND(      )
200  CALL Band
210  IF      =0 THEN      
220  SOUND      
230  IF      =0 THEN      
240  SOUND      
250  SOUND 0,      
260  IF      =0 THEN      
270  SOUND      
280  ENDPROC
290
300  REM DATA FOR MUSIC
310  DATA 101,15,10,      ,      ,      ,      ,      ,      ,      ,
,0
320  DATA 102,      ,      ,      ,      ,      ,      ,      
```

HOME COMPUTER "CONSOLE"



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THE ΩMEGA RUN....

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UXB
Dragon 32
£6.95

Virgin Games, 61-63 Portobello Road, London W11

As a bomb disposal officer, you must defuse an unexploded bomb using a number of menu-based choices and tools

The wrong selection of any choice kills you instantly, but then the program relents and allows you to live again at the point before which you made the error, or to return to base to seek further advice

UXB is written mainly in BASIC, and players with some programming ability can improve their chances of staying alive by examining the original listing

The instructions were brief and somewhat confusing. The program is mainly text, with only occasional high resolution graphics

There is a spasmodic "out of memory" error which has the frustrating habit of occurring near the end of the game

You will find UXB both intriguing and frustrating until you solve the de-fusing procedure

It should pass an interesting evening for a moderately expert bomb disposal officer, but be warned that in your profession, careful thought is more important than a fast finger on the button

I.S.

instructions	45%
playability	70%
graphics	60%
value for money	60%

★-★-★

Battleships
TI-99/4A £5

Stainless Software, 10 Alstone Road, Stockport SK4 5AH

I would think that just about everyone reading this has played Battleships at one time or another

This computer version has all the ingredients of the game and has been well programmed using good graphics

The game can be set up to enable two players to participate or for one player against the computer

You place your battleships on the board using the direction keys and the spacebar and the second player, or the computer, places their ships on a second board

The players then take turns to locate and destroy their opponents' ships

The players can elect at the start of the game to play a set number of turns, where the winner is the one with the most hits at the end of the game, or to play until all of the opponents' ships have been sunk

Battleships is a nicely laid out program with adequate instructions given on screen before the start of the game. Ideal for the younger computer player.

D.B

instructions	80%
playability	70%
graphics	70%
value for money	80%

★-★-★

Up Periscope
Dragon 32
£6.95

Beyond, Competition House Farndon Road, Market Harborough LE16 9NR

This game is certainly different and should appeal to those with a leaning towards war and strategy games

The aim is to get your convoy of ships, or as many of them as you can, through the enemy submarines and off the edge of the map

You command either the convoy and destroyers or the subs, by moving pieces around a map as they did in operations rooms during the last war (if all the old films are to be believed).

The pieces are your fleet, and you have all the aids you need, including sonar, depth charges and torpedoes to enable you to search out and destroy the enemy

This doesn't mean that the game is easy. Even the well written instructions take a long time to digest, and thinking in 3D as the submarine commander must do is very taxing.

But it's very playable — enjoyable to pit your wits against either another person or machine.

The graphics are very clear and don't cause any confusion, and there is even a 'cheat' option for those getting too desperate to play to the rules.

This is definately a thinkers' game, but should as the makers claim 'give a challenge which lasts for months not minutes' **D.C.**

instructions	90%
playability	90%
graphics	90%
value for money	95%

★-★-★

Falcon Patrol
CBM 64 plus Joysticks £6.95

Virgin Games, 61 Portobello Road, London W12

You are a lone Harrier, with limited fuel to sustain you against two to four attacking fighters

The graphics show about a quarter of the total playing area, with the rest displayed as a Defender-type radar display. Your remaining fuel is also shown, along with the remaining number of air-to-air missiles

These two commodities can be replenished by landing vertically on a kind of landing pad. There are five or six of these in the area, but they are susceptible to being bombed by the opposition.

The enemy can of course shoot back. When they hit you, there's a very good crash sequence showing your plane catching fire and dropping slowly to the ground to explode in a shower of flames

The 3D display of the ground is good, too, with refuelling dumps, buildings, roads and of course the landing pads. Cars and lorries drive along the wrong side of the road, though, and petrol is called gas, hinting at American roots.

Sound effects make full use of the SID chip. Overall, this is one of the best games for the 64 that I have seen. **M.R**

instructions	70%
playability	85%
graphics	97%
value for money	80%

★-★-★-★-★

Battle Flight
Oric 1 £4.95

Stour Computing, 16 Old Bridge Road, Bournemouth

In this Battle of Britain simulation, you are a Spitfire pilot

The screen display is a plan view with 3D views for take-off, landing and aerial battles. You are flying over 900 square miles somewhere near the Isle of Wight, represented by 42 screens — leave this area and you fly into fog.

There's an A4 sheet full of instructions, which unfortunately contain a lot of pilot's jargon. Most of this you can guess at, but some of it baffled me — what's 8 OCTAS, for instance?

Graphics are good, although a little more detail wouldn't go amiss. Your plane and the enemy plane are represented by two crosses — user defined graphics would be better

The instrumentation could be improved. Height, speed and what have you are represented by a number and identifying letter. This is OK when you're just flying about, because you have time to consult the instructions, but when you're locked in combat with the deadly hun, every second counts. The controls are set out rather oddly, too

Use of sound is good, with realistic engine noises. Generally good value, but too complicated for younger children. **M.R.**

instructions	60%
playability	90%
graphics	70%
value for money	98%

★-★-★-★-★

Armageddon
Spectrum
£5.95

Silversoft, London House, 271/273 King Street, London W6

Defend your six cities from missile attack and other nasties with your three missile bases.

Your target sight moves up and down with K and M, left and right with Z and X; Q, W, & E fire independent missile launch or L gives computer controlled launch. There is a 'hold everything' button and Kempston joysticks facility.

The graphics are excellent — missiles come in fast and furious, planes, satellites and intelligent weapons abound and the explosion of your cities looks, and sounds, truly evil.

The controls respond so fast that my non-dextrous fingers could not keep up so I engaged an expert.

He reports that it is the best and fastest game of this scenario that he has played and can be have it when I've finished with it — can there be any higher praise?

The only criticism I have is that the enemy weapons are listed under the heading of Strategic Air Defence on the cassette insert, which caused me a little initial confusion and a few burnt out cities.

But I think my expert friend may be disappointed — I'm getting better all the time and my country needs me. Highly recommended. D.C.

instructions	85%
playability	95%
graphics	95%
value for money	99%

★★★★★

More monsters to fend off in these five action games. Our reviewers took them on and tried them out

Alien Swarm/ Arena
Spectrum
£6.95

By Titan, from K-tel, 620 Western Avenue, London W3 0TU

In Alien Swarm, a swarm of mutant bees scrolls its jerky, flickering monochrome way down the screen towards your weapon. Why mutant, I hear you ask? Well brother, these bees fly backwards with no wings!

Accompanied by sounds which can only be compared with a small soggy balloon being released, they drone on until you get them, or they get you.

If you succumb, more rasping takes place, and a square spider's web blots you out.

If you win, then you have my commendation for stickability in the face of boredom.

The program appears to feature several levels, the next of which has non-animated crabs or scorpions or something, dropping undefinable lumps of crud upon you. But at this point I gave up.

To be fair, this is a good game concept. My nine year old son enjoyed it well enough, and in the hands of Ultimate, Imagine or Psion it could have been superb. D.M.

instructions	95%
playability	95%
graphics	20%
value for money	10%

★★

Starclash
Spectrum
£6.95

Micromega, 230-236 Lavender Hill, London SW11 1LE

Another of the multitude of variations on space war, this program is not particularly exciting. But I suppose it's hard to come up with new ideas in this well tried area.

Alone in your new Starfighter, you are jumped by waves of alien ships of varying types. These are accompanied by bombs and meteors.

You must dodge left and right at the bottom of the screen, attempting to destroy each attack and graduate to the next.

If you do away with four types you face the mother ship — a rather Chinese looking affair. Hit in the correct spot, it explodes and recharges your weapons system.

The sound and colour are fair, but the game is rather plodding and lacks real freshness. It operates smoothly enough and there are no complexities that require endless referral to instructions.

It is compatible with the Kempston joystick but runs well enough from the keyboard.

A personal vote of thanks to the suppliers for giving the reviewer an unlimited lives version — a nice business courtesy. P.C.

instructions	95%
playability	70%
graphics	60%
value for money	60%

★★★

Bat Attack
CBM 64 £7.95

Alligata, 178 West Street, Sheffield S1 4ET

Bat Attack is an invaders type game that I found rather compulsive.

A nice point is that you can indicate whether you are using a black and white monitor or colour by pressing the B or C key. Unfortunately, though, the game does not take a joystick.

When you start to play your space vehicle emerges out of the ground with impressive sound effects. The invaders consist of several rows of bats that bomb you and/or swoop down onto you, again with good sound accompaniment.

If you manage to clear the screen of bats then you face an army of large doughnuts that drop down out of the sky. You can't fire at these — you must just try to avoid them.

If you survive the doughnut attack you are then on the next level with a new wave of even more deadly bats.

The screen showed the score to date, the current highest score, the number of lives left (you start with three), and the level.

I liked this game and had a job to stop playing it so I could write this review. The sound effects added to the atmosphere — unlike many games, where the sound is an irritant. L.C.

instructions	70%
playability	80%
graphics	70%
value for money	70%

★★★★

Martian Attack
32K BBC £7.95

Micro Power, 8/8a Regent Street, Chapel Allerton, Leeds

The tape loaded perfectly to reveal a Martian night sky, a blood-red landscape and a solitary domed city.

You move your laser beam's cross-hair sights around the sky and the landscape scrolls rather beautifully left and right across approximately three screen widths.

Movement is with the now standard Z, X, . and / keys or you can use a joystick — which I preferred — but you may find yourself being rather hard on it as you drag it back to engage your force field.

Alien ships fly back and forth dropping bombs on the city. You really need to shoot each ship with one or two shots to defer the onslaught.

If a ship passes your defences it comes back again, by which time another is already following and likely to be your downfall.

You never win, of course, and rarely get a second chance, so excitement and/or frustration can run high.

Constant use of the laser and force field depletes your energy.

It is fairly easy to lose a city, and although you get three lives I can imagine interest waning quite quickly.

The game is well presented but with little to distinguish it. A high score is shown but no list of names — a disappointing neglect. I.W.

instructions	100%
playability	70%
graphics	80%
value for money	60%

★★

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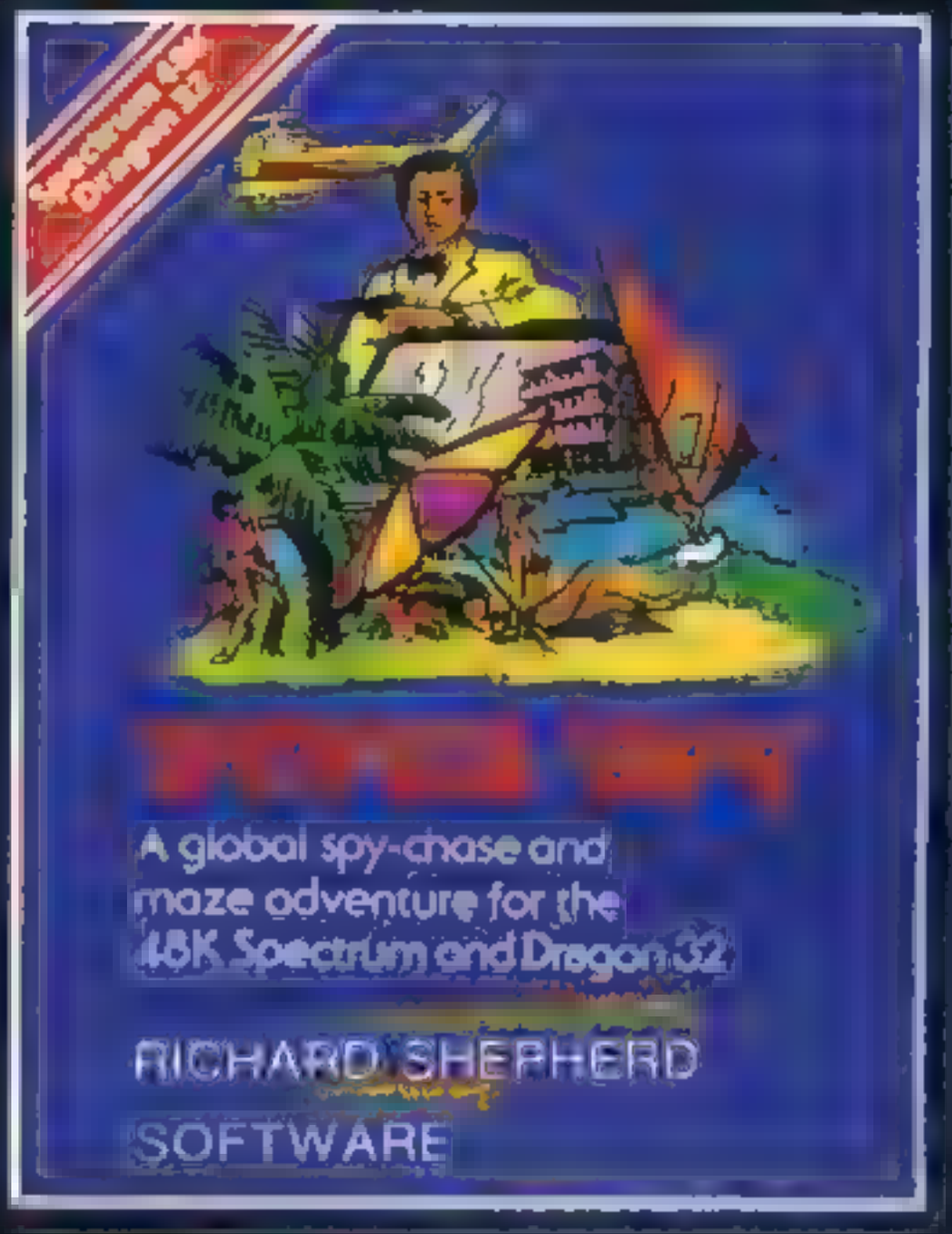

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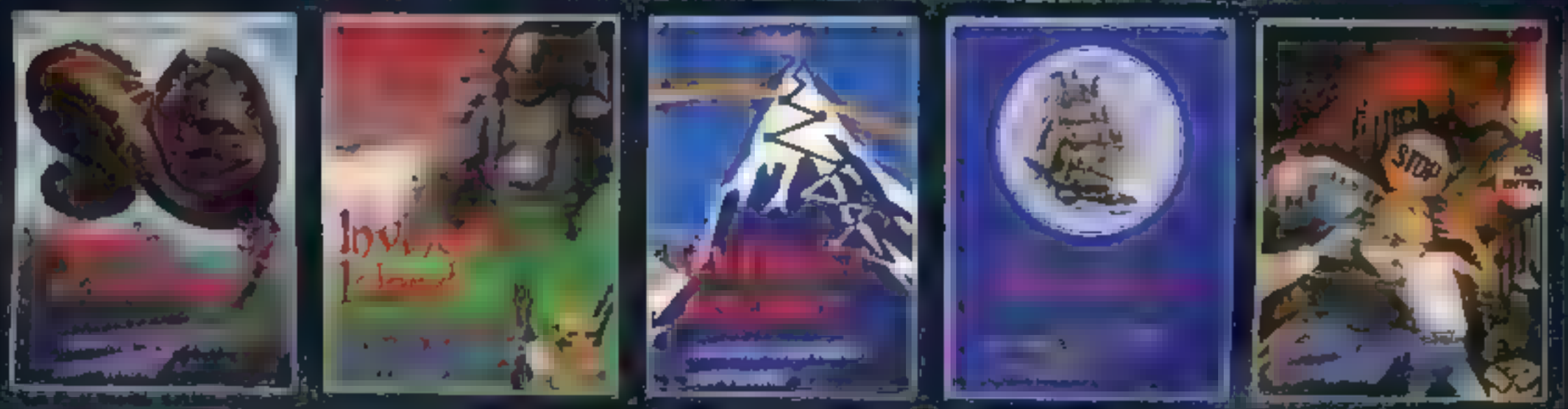

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PROFILE

Collective efforts of the Salamander Six

As the home computer software market gets steadily slicker and more commercial, a lot of people in the software business are starting to feel that things ain't what they used to be.

The customer is getting a better deal, which can't be bad. But all too often professionalism is achieved at the expense of the friendliness and informality of the good old hobbyist days.

Brighton-based Salamander Software, best known for its Dragon charbusters such as Nightflight and Franklin's Tomb, is fighting a rearguard action against creeping formality

The company is run as a collective, with the six partners each having an equal say in how the business is run.

As one partner, Chris Holland, put it: "There's no-one in charge, because we find we work best that way. We all muck in, and we're all capable of doing things in other fields.

"We don't actually employ anybody, and we don't intend to People work with us on a contract basis — we even had a freelance secretary "

It helps that the Salamander six all know each other from the days when they were at Sussex University together, and a lot of their freelance help also comes from old college friends.

But this group of friends is lucky enough to combine ost of the skills that a successful software company needs.

There's Pete Neale, a Texan, otherwise known as Pete the Hat (see picture), an ex-IBM mainframe programmer, and Lucy Parker, who did a course in design. Jul Carson also worked as a graphic designer, and Paul Kuczora used to be an electrical engineer. Pete Ohlson worked as a business systems programmer

Chris Holland trained as a teacher and used to drive coaches around Europe. What's that got to do with software? Chris explained: "The others were looking for someone who was generally fed up with what he was doing, to take over the retail sales. And that was me".

Salamander first began selling programs just over a year ago, in September 1982. It all started because Pete Neale, who had just bought a Dragon, couldn't find any software for it. He decided to write some of his own, along the lines of the role playing games he'd been playing since he was nine

The programs started to sell well by mail order. In November '82 the first retail order came, from Antrog, and the High Street chains followed in spring 1983.

Over just a few months, the Salamander team found themselves shifting 50 to 70 times the number of tapes they had first started with, which meant a lot of hard work — regular 14-hour days, often seven days a week.

Everything from the programs themselves to the artwork for the cassette inlays and adverts was done in-house, and the team had to learn everything from scratch "For example", said Chris, "We didn't understand about advertising copy dates, so first ads came out a month too early Luckily, we've always got on well "

Salamander runs more smoothly now. The partners all have their own areas of responsibility. Pete Neale takes care of research and the company accounts. Paul Kuczora handles marketing. Lucy Parker and Jul Carson are the art department. Pete Ohlson, who has just joined the company full-time, is projects director. And Chris Holland deals with retail sales in the UK and Scandinavia — it's him that drives around talking the shop into stocking Salamander software

The company has two or three regular freelance programmers, but finds that a lot of good programs arrive through the post. Before any games are released on the public however, they are handed to Donald the Play Tester — an unemployed ex-student who, Chris says, "does the most mind-boggling things to games, and finds the most obscure bugs."

Salamander specialises in the Dragon mainly because that's the machine it started with. Chris Holland feels that "the Dragon does everything competently, and it does some things very well — if you dig deep enough, you can get some very nice graphics from it Its major limitation is its sound."

But he admits that "We were too late for the Spectrum market, where the turnover may be higher but the profit margins are much lower. But if a kid came to us and asked us to recommend a computer, we'd probably say, get a Spectrum."

The company has recently started to sell some BBC, Electron and Oric programs, and is now in the process of deciding whether to start supporting a new machine, and if so, which. As well as role-playing Franklin's Tomb and Castle Baron series, educational and utility programs, it sells some arcade games, including Dragon versions of Llamasoft's Gridrunner and Laser Zone

Early next year it plans to release Rainbow Warrior, a machine-code arcade game for the Dragon, so complicated that it will need a 20-page manual to explain it.

But Chris says: "we feel that the arcade market is shifting away towards a more logical approach. Our classic game, Dragon Trek, has been around since the company started, and we're still selling 300 to 500 of them a month. Logical games last much longer.

"So at Salamander we're now moving towards good quality graphic and text games, where you have to use your head first — then move your hand."

Salamander's six partners: from left to right (top), Pete Ohlson, Pete the Hat, Chris Holland, (bottom) Jul Carson, Lucy Parker, Paul Kuczora

Hello, Mr Chips

Will these programs do a good job of teaching your child, or is it the software companies that have something to learn?

Maths Invaders 32K BBC or Electron £7.95

Stell Software, 36 Limefield Ave, Whalley, Lancs BB6 9RS

At last, I can hear you yelling, something to make young Jimmy want to learn his tables and number bonds. If it has Space Invaders in it, he's bound to want to play it

Well, perhaps he might, but I somehow doubt it. The aim is certainly there, and the idea is basically sound, but the program is so slow and boring that it really doesn't have that extra appeal.

And remember that the Electron runs slower than the BBC — so the problem will be even greater on that machine'

The game has enough levels and choices to suit a number of ability levels, but the game format is identical in each case

The alien ships come (slowly) down the screen towards you while you manoeuvre your craft to shoot them down

To do so you must first prime' the gun by pressing the numbers which form the answer to the particular problem posed on the ship's pointed nose

If all is well, you obliterate that ship and proceed to the next. This then repeats until the sheet is finished or an alien ship lands. A great idea but poorly implemented

D.C.

instructions	75%
ease of use	60%
display	60%
value for money	50%

★-★-★

Mr T's Shape Games 32K BBC £12.95

Ebury Software, 72 Broadwick Street, London W1

This has got to be one of the most attractive looking packages of software to cross my desk. The glossy case opens to reveal a full colour parents' booklet, some stickers for the kids and the cassette riding within — and if you'll take my advice, that's where it should stay

For despite the superb presentation, the program is not worthy of the space it occupies

There are in fact two programs the first of them called Jigsaw

Here you have a picture made up of shapes which you have to match with the shapes that fall down the screen. This is done by pressing the space bar when they are superimposed on the matching shape. Pressing the bar at any other time results in the usual 'raspberry' sound

The whole thing is boring for even young children, because only the shapes used in the picture ever appear, only their exact match in shape and size, there are never any mismatches seen!

The other program is a drawing package which builds pictures by putting shapes together

D.C.

instructions	70%
ease of use	50%
graphics	50%
value for money	20%

★

Castle Spellerous 48K Spectrum £7.95

Sinclair Research, 25 Willis Road, Cambridge CB1 2AQ

The screen display shows a princess in a castle. One at a time, each word is flashed onto the screen and the child must type it back correctly

This done, one of 10 soldiers starts to build a tower to rescue the princess. Get it wrong twice and the soldier is either zapped, or captured by a vampire

Overall success brings the graphic rescue of the princess, fail and the wizard appears. In any event your ZX Printer prints a certificate with your score

The program has 10 different sets of words, classified in "families". You can put your own words into the relevant data statement s

Does seeing a word and typing it back constitute spelling? Not in my opinion. Spelling entails understanding word meaning in context and translating it into a written symbol, or hearing a sound understanding meaning in context, recalling the written symbol and transcribing it

The meaning in context is vital if you are to differentiate between "stake" and "steak" for example No meaning can attach to the words in this program. The program tests visual discrimination and short term memory only

D.M.

instructions	100%
ease of use	100%
display	90%
value for money	50%

★-★

Lunar Letters Spectrum £7.95

Longman Software, Longman House, Burnt Mill, Harlow

After an over-long loading sequence four star bases appear.

Pressing P brings a spacecraft onto the screen followed by five intrepid spacemen The first man is 'beamed' on board and a letter appears in each of the bases The spaceman himself changes into one of those letters

The idea is to steer the craft plus letter to dock with the base containing the same letter, using the cursor keys

If the letters match, the ship returns to the home port and beams down the successful spaceman before picking up the next. When all five have completed their mission they return to the ship and are carried home, ready to begin again

The cursor controls are easy to operate, but are, I feel, expecting a bit too much from a young child

Perhaps the program would be best suited to a child in the early school years who is having problems with letter recognition.

Alternatively it could be used by a younger child with parental involvement — a situation Longmans quite rightly encourage with all their software.

An interesting program, full of colour, movement and sound My three year old loved it!

C.B.

instructions	95%
ease of use	85%
display	100%
value for money	85%

★★★★

Sums Are Fun/ Taking Away For Fun TI-99/4A £5

Stainless Software, 10 Alstone Road, Stockport, Cheshire, SK4 5AH

These two programs are designed to test the youngsters on simple addition and subtraction, but do require adult supervision

Sums for Fun has two difficulty levels, for whether your child is able to count up to 10 or 20, and progresses through three stages

The child's name is entered, then he or she is asked if they would like to count in apples, lemons, cherries or oranges

Five questions follow, illustrated by the graphic chosen After each answer has been input the screen clears and a right, wrong or well done message appears in large letters

At the end of the round a score is given. Should this be satisfactory, further questions are provided in Stage 2. These are asked as sentences without the use of graphics.

A sufficient score after five of these questions begins Stage 3 where sums are given in the conventional A + B = ? format.

Taking Away for Fun is similar, but questions are asked in only two stages

The first offers graphics displays of ships, cars, fish or birds. The second uses conventional A–B = ? subtraction, but does give a graphics illustration of how the correct answer is obtained, should the wrong one be entered.

J.W.

instructions	n/a
ease of use	80%
display	60%
value for money	80%

★-★-★

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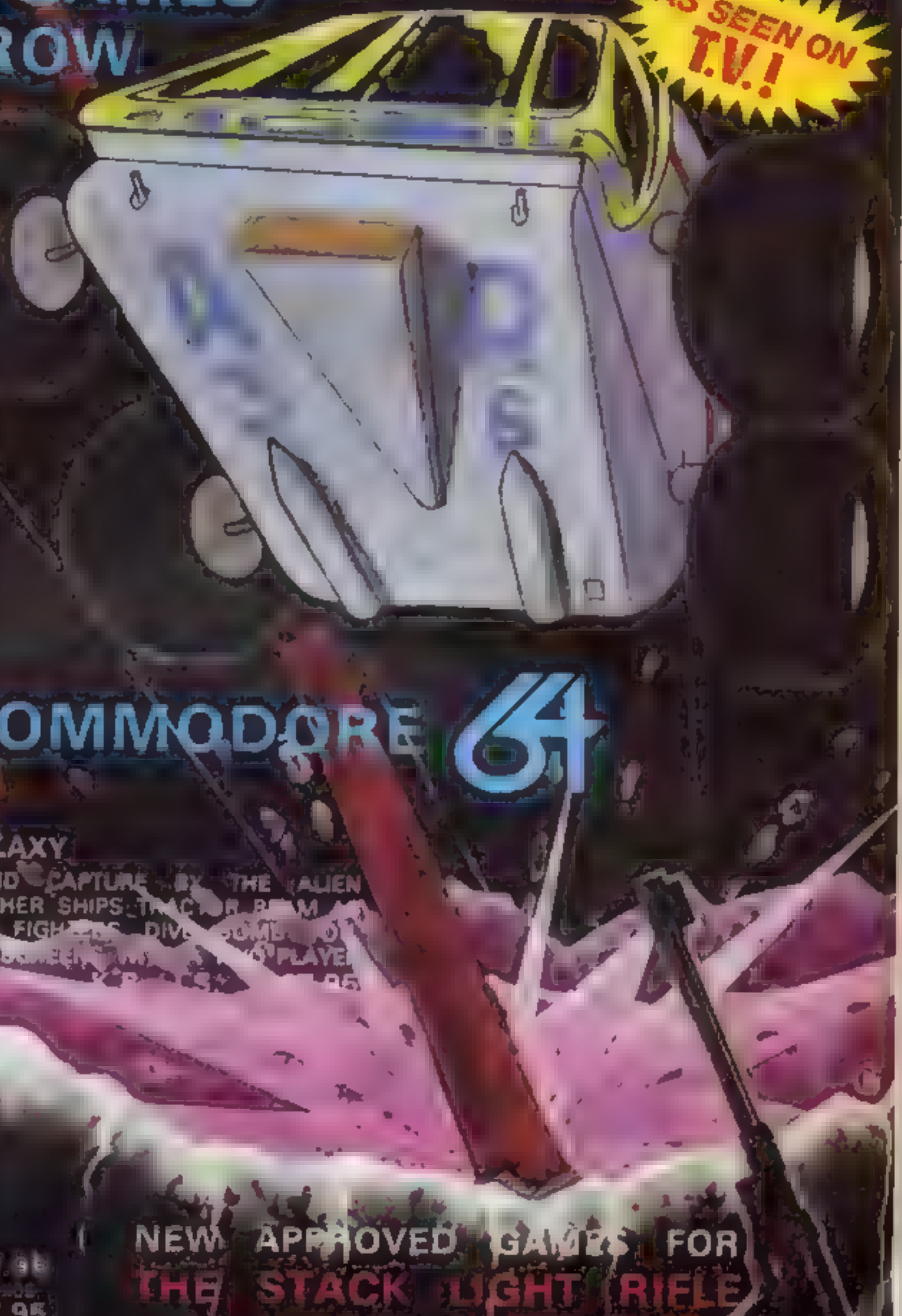

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Fantastic voyages

More strange locations to explore in these five adventure games. These are the tales our reviewers had to tell about them . . .

Adventuremania
TI-99/4A £5.95

Intrigue Software, Cranbrook Road, Tenterden, Kent TN306LJ

This is a graphics adventure for the standard machine which not only provides a continual display of your status but shows a 3-dimensional outlook of your location

Since the adventure is set in London, this includes some of the landmarks such as Trafalgar and Leicester Squares and the Strand.

You have a spectacular mission to accomplish, but you must first discover for yourself what this is

The computer has been given a fairly limited vocabulary and your instructions are not input as complete words. The first three letters of the verb followed by the first three of a noun, with no space between, is the only format accepted

This takes some getting used to at first, but eventually you see the advantages of not having to type out long sentences only to be greeted by "do not understand"

Adventuremania is not a difficult game to play. Unlike some adventures your progress is not impeded by cryptic clues that take hours to unravel

The game usually ends as a result of your own misfortune and at least if you don't manage to complete it you do have a score given as a percentage, for consolation J.W.

instructions	80%
playability	75%
graphics	70%
value for money	85%

★-★-★-★

Zorgon's Kingdom
VIC-20 plus 8K or 16K £9.99

Romik, 272 Argyll Avenue, Slough, Berks

Zorgon's Kingdom is a real time graphic adventure, loosely based on Donkey Kong. Playable with the choice of keyboard or joystick controls, the keyboard was easier to use but the latter proved more successful

As you guide your adventurer through five screens, you will encounter bouncing bombs, mutating octopi, electron bolts and many other hazards besides

Six lives are available in order to allow you a chance to defeat Zorgon's minions and the evil devices. Only then will you be able to face the monster himself

Unfortunately I found it impossible to complete the fifth screen and so never had the pleasure of meeting the elusive Zorgon.

Between each screen there is a pause of about three minutes while the next screen is loading.

Overall this proved a very enjoyable and addictive game The graphic and sound capabilities of the machine are used to the full

I'd go so far as to say that it's probably one of the best games for the VIC-20 on release at present. K.W.

instructions	90%
playability	100%
graphics	100%
value for money	100%

★-★-★-★-★

The Kingdom of Klein
32K BBC £7.95

Epic Software, 10 Gladstone Street, Kibworth Beauchamp, Leicester

I was very interested to get my hands on this cassette, as one of the features it boasts is full sentence input

This is a step forward in adventure game programming, which means that you can actually communicate your instructions to the machine in reasonable English, rather than in the stunted two word manner that most adventures understand and demand

This game does have the feature. But it is of very little use, as the program often ignores the sense of the words, simply accepting the first word it understands — and there are precious few of those, unfortunately

So I was very disappointed before I really got going, and I haven't found much to excite me yet'

The game is obviously well structured but the descriptions are very short I could find little to grasp on to and tended to wander around with very little idea of what to do next

The game doesn't have a Help feature and doesn't use a split screen either.

I can therefore only conclude that this is a game for the experienced adventurer and not for the beginner at all. For adventure veterans, the game plays well but is rather uninspiring D.C.

instructions	60%
playability	60%
graphics	n/a
value for money	50%

★-★-★

Dark Lore
48K Spectrum £6.95

8th Day Software, 18 Flaxhill, Moreton, Wirral, Merseyside

Adventures form a popular and expanding division of the games program market. The rate of development in this area has brought considerable sophistication — the disciples of the adventure can expect it

But this program does not have what it takes — or at least what it may have to offer is lost in crude presentation. Money has even been poorly spent on a misprinted insert card. The loading logo is a poor advert, too.

A wide vocabulary is boasted, but it was very easy to build up a screenful of 'what did you say?' responses.

Even allowing for the reviewer's lack of experience in these games some responses would be difficult to guess at for a hardened adventure buff

I appreciate that learning by experience is the way of these games, but there was little encouragement to keep going.

Working purely from the location descriptions (no graphics) with no colour or sound and frustrating responses tediously repeated, was hard going. The speed of execution was annoyingly slow

100 locations are contained and the user would be wise to make maps and notes as advised I was grateful for the hints sheet (available by SAE if you get desperate). Good intentions but uninspired presentation. P.C.

instructions	70%
playability	50%
graphics	n/a
value for money	40%

★-★

The Hobbit
48K Oric £14.95

Melbourne House, 131 Trafalgar Road, London SE10

Spectrum owners have enjoyed the Hobbit for some time and it has now been faithfully reproduced for the Oric

For those familiar with other adventures, the Hobbit opens up totally new horizons. Interacting characters ensure that you will never be certain of what is going to happen next

You are Bilbo, and your mission is to recover the Dwarves' treasure, hoarded by the dragon Smaug, and bring it back to your home

Your progress depends on your decisions, but the best hints are to be found by careful reading of the book itself

All the favourite characters appear on your screen, and pictorial representations of different scenes add to the realism.

Here I must mention the only significant criticism I can make and that is the irritating slowness in drawing some of the pictures.

You won't master the adventure for many weeks, but you can save the program at any stage.

The beauty of the Hobbit really lies in the interplay between the characters whether or not you are present It is certainly a superb adventure You will be captivated, elated, frustrated but never bored. P.S.W.

instructions	100%
playability	100%
graphics	80%
value for money	95%

★-★-★-★-★

48K SPECTRUM OWNERS *Read This From*

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★ ★ ★ FINANCE MANAGER ★ ★ ★

Voted "the best value financial program available" by SINCLAIR USER

FINANCE MANAGER is a powerful, flexible and very fast MENU DRIVEN general purpose ledger package which includes both standing order and special forward planning features The program will handle up to **255** separate accounts and 1800 transactions The power of MACHINE CODE has enabled us to produce the very latest "on the page" presentation which lets you enter and edit data naturally, as if you were filling in a form.

These screens are just a sample to show the style of the program:

But that's not all, not by a long way. This program **automatically** raises a corresponding debit or credit for every entry, and will even open a new account if an entry features an unrecorded account name Information can be manipulated in various ways you can call up your bank or credit card account, or analyse expend ture according to a variety of categories which you assign to the transactions Instant Account balances can be listed at any time A great time saving feature of this program is that account names and transaction descriptions need only be recorded **once**, as all the input fields will scroll existing files. There are many many more features which make th s the most powerful finance package around, we even include a test file for you to experiment with before getting started

★ ★ ★ ADDRESS MANAGER ★ ★ ★

ADDRESS MANAGER utilises the same "on the page" presentation as FINANCE MANAGER and offers Spectrum owners a professional standard address filing, indexing and retrieval system Be ow are examples of the screen presentations

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Put your foot down... but mind those trees

Although he's not old enough for a driving licence, Graham Simpson, aged 12, has produced a challenging driving game for the unexpanded TI-99/4A

You'll need all your driving skill as my game takes you on a forest rally

Although the program uses just standard TI BASIC, it's a challenge to complete the course

How many miles will you complete before – crash!?

Although it has the same name, this is not the Forest Rally game in an earlier issue

How it works

10-380 sets up first screen
390-500 sets up characters and colours
510-560 move car
660-730 reads data for course
740-1920 data for course
1930-1950 starts course again
1960 end routine

Variables

C$(5) strings containing the forest course in the form of P1 to P100 DATA statements
FAR distance in miles car has travelled (score)
C gives position of car in screen column
P provides next front of track to be plotted

Hints on conversion

CALL CHAR (ASCII code number, hexadecimal string) defines the pattern to be given to the character with the ASCII code stated

CALL HCHAR (row number, column number, ASCII code, number of repetitions) places character with ASCII stated at row and column specified, and optionally repeats it horizontally the number of times stated

CALL VCHAR (row number, column number, ASCII code, number of repetitions) works in the same wasy as CALL HCHAR only repeats vertically

CALL GCHAR (row number, column number, numeric variable) equivalent of PEEK. Assigns ASCII code of character at row and column stated to numeric variable

CALL CLEAR clears the screen

CALL COLOR (character set, foreground colour code, background colour code) specifies foreground and background colours for all characters in set specified

CALL SCREEN (colour code) specifies screen colour using colour code

CALL SOUND (duration, frequency, volume) produces sound. Duration in milliseconds, frequency in Hertz (or noise code), and volume on scale from 0 loudest to 30 quietest

CALL KEY (key unit, k, s) equivalent of INKEY$. returns code of key pressed in variable k

```
10 DIM C$(128)
20 CALL CHAR(21,"FFFFFFFFFFFFFFFF")
30 CALL CLEAR
40 CALL SCREEN(5)
50 FOR CL=1 TO 16
60 CALL COLOR(CL,9,1)
70 NEXT CL
80 PRINT "      vvvvvvvvvv                "
90 PRINT "     vvvvv      v               "
100 PRINT      vvvvv        v
110 PRINT    vvvvvvvvv          vvvvvvvvv
120 PRINT    vvv vvvvvvvvvvvvvvvvvvvvvvvv
130 PRINT    vvvvvvvvvvvvvvvvvvvvvvvvvvvvvv
140 PRINT     vvvvvvvvvvvvvvvvvvvvvvvvvvvvv
150 PRINT     vvvvvvvvvvvvvvvvvvvvvvvv
160 PRINT "    vvvvvvvvvvvvvvvvvvvvvvv
170 PRINT         v   v       v   v
180 PRINT "       v   v       v   v
190 PRINT "         vv          vv
200 PRINT "     X 1=63: FOR I=1 TO 1
210 P=1
220 RESTORE
230 C=1
240 FAR=0
250 CALL CHAR(120,"3C4299BD
```

```
260 PRINT "                 TOAST ON! PRESS Y
270 CALL SCREEN(
280 CALL KEY(0,K,S
290  IF S<>0 THEN 280
300 CALL SOUND(400,500,0
310 IF (K<>89)*(K<>121) THEN 340
320 CALL CLEAR
330 GOSUB 2200
340 CALL DELAY
350 CALL HCHAR(
360 CALL COLOR(
370 NEXT CL
380 CALL SCREEN(4)
390 CALL HCHAR(24,1,P,31-C-D+8)
400 CALL CHAR(112,"0A0A7E5A187E5A0A")
410 CALL CHAR(33,"FFFFFFFFFFFFFFFF")
420 CALL CHAR(40,"0A0A0A1A1A2A2A2A")
430 CALL CHAR(41,"0A0A0A2A2A1A1A1A")
440 CALL CHAR(42,"0A0A0A4A4A2A2A2A")
450 CALL CHAR(43,"
460  FOR I=1 TO 8
470  CALL HCHAR(
480 CALL
490 CALL
500 CALL
```

```
510 CALL KEY(0,K,S)
520 IF S=0 THEN 640
530 IF K=83 THEN 760
540 IF K=68 THEN 810
550 GOTO 640
560 C=C-1
570 CALL HCHAR(
580  IF  GET  GET  THEN  950
590 GOTO 640
600 C=C+1
610 CALL GCHAR(12,C,GET
620 IF  GET  GET  THEN 950
630 GOTO 640
640 CALL HCHAR(12,C,112
650 CALL GCHAR(13,C,GET
660 IF P=120 THEN 1930
670 PEEP(CHR$(
680 CALL HCHAR(12,
690 PRINT CHR$(
700 IF GET  GET  THEN 1950
710 P=P+1
720 FAR=FAR+.01
730 GOTO 5
```

TI-99/4A PROGRAM

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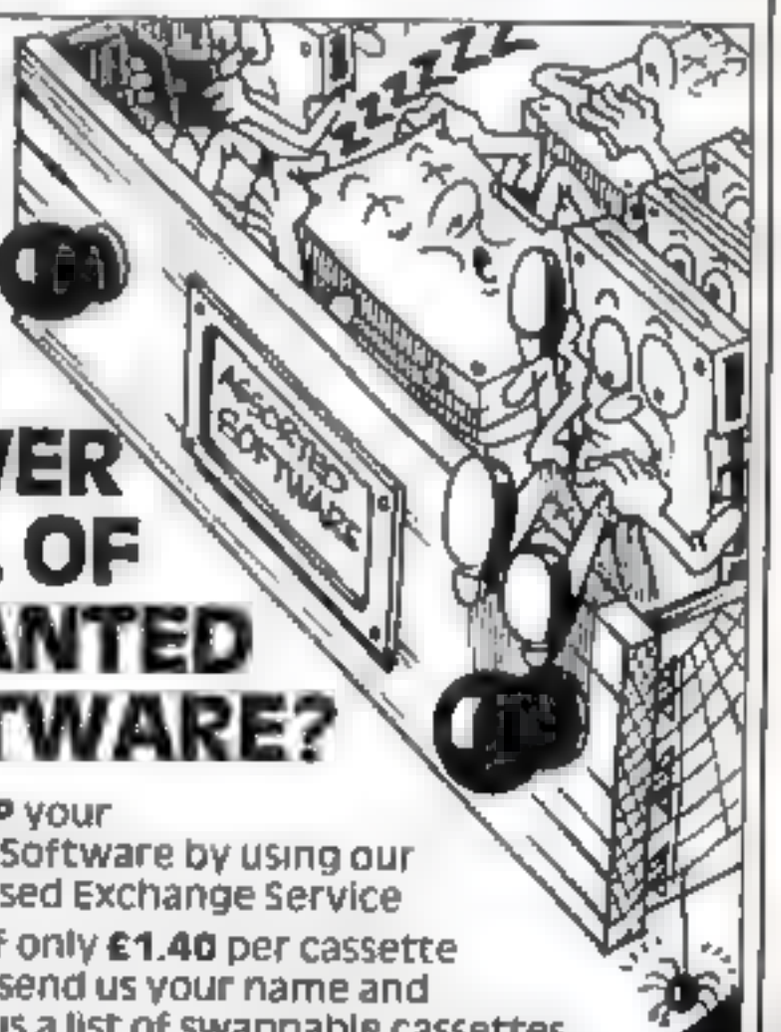

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Take your chances on the turn of a card

You could win more than £½m or lose £1,000 in Ian Sellman's game. The program has been tested on a Dragon 32 and a 32K Tandy Colour Computer with Extended BASIC

Hi-Lo is a game of chance with cards in which you start with £1,000 and bet on the turn of nine cards

You can gamble from £100 to £900 in hundreds or, by pressing A, you can risk all your money.

It is possible to turn your £1,000 into £512,000 if you double your money on the turn of each card.

Hints on conversion

If you convert the program for any other computer, take into account the following points.

- The text screen resolution is 32 x 16. The graphics work on a grid of 256 x 192. All the writing on the graphics screen is drawn. On most micros it can be PRINTED
- The P MODE and SCREEN commands are used to switch from the text to the graphics screen
- The DRAW command draws as directed by a string of instructions, e.g. U=up. This command also allows things to be scaled up or down by using "Sx" where x is the factor by which it is scaled. In this instance, a scale of four is normal size
- The PAINT command fills an area of screen with a certain colour. The COLOR command changes the colour of the line command, which can draw lines, boxes and filled boxes

Aces are classed as both low and high, so you can always win if either of the cards is an ace. You also win if the two cards are the same.

The program is fairly easy to change as it is a string of sub-routines linked together by a control routine.

You could, for example, alter the graphics and/or sound.

Main variables

- **Card** number of card being dealt with
- **D** used in FOR NEXT loops to create a delay
- **HS** holds highest score
- **Stake** holds your bet
- **TT** holds your total
- **HS$** stores name of holder of highest score
- **A (52)** array used to check that the same card is not used twice
- **B (10** holds the 10 cards being used
- **T (2)** checks the two cards to see which is higher

Note: this program has been tested on both the Dragon 32 and the 32K Tandy Colour Computer with Extended BASIC.

How it works

- **10-20** sets highest score to 1,000 points gained by the computer
- **30-160** title page
- **170-240** instructions
- **250-300** PRINTS "good luck" on screen
- **310-370** DIMension arrays
- **380-480** set up graphics screen
- **490-530** draw outline of a card
- **540-590** deal card face down on screen using above routine
- **600-960** draw number and symbol on cards
- **970-1270** ask for stake
- **1280-1460** control routine which calls up required sub-routines
- **1470-1540** select cards at random and then check that they have not already been selected
- **1550-1640** ask for guess of either higher or lower
- **1650-1760** updates total, displays it on screen
- **1770-1910** computer decides if you are right or wrong
- **1920-1950** have you got highest score?
- **1960-2110** display scores, asks if another game is wanted
- **2120-2200** updates highest score
- **2210-2270** reset variable for next game

DRAGON/TANDY COLOUR PROGRAM

```
680 DRAW"BM+2,+2L4UER2EJ2HL2GBM+10,+5":RETURN
690 DRAW"BM+2,+1FR3EJHL2R2EU4HL2GBM+8,+5":RETURN
700 DRAW"BM+1,+2U6G3J4BM+4,+[illegible]:RETURN
710 DRAW"BM+2,+1FR2EJ2HL[illegible]BM+4,+4 RETURN
720 DRAW"BM[illegible]BEF2EJ2HUER2FBM+4,+5 :RETURN
730 DRAW"BM+0,+2U2E2U2L4BM+8,+6":RETURN
740 DRAW"BM-1,+2R2EU4HL2HUER2FDGL2GDFBM+7,+0":RETURN
750 DRAW"BM-2,+1FR2EU4HL2GDFR3BM+4,+3":RETURN
760 DRAW"BM-2,+1FR2EU5":RETURN
770 DRAW"BM-1,+2R2EU4HL2GD4FBM+1, 2F2BM+7,+0",RETURN
780 DRAW"BM-2,+2U6BM+0,+3ME3G3F3":RETURN
790 DRAW"BM-2,+2U5ER2FD5GL4":RETURN
800 DRAW"BM-3,+2U6GBM+4,+4FR2EU4HL2GD4":RETURN
810 DRAW"BM+0, 1FR2EU4HL2GD4BM+8,+1":RETURN
820 DRAW"BM-1,+2U6BM+6,+5":RETURN
830 ON Z+1 GOTO 840,850,860,870
840 A$="DL2D3L2D2R3D2R2U2R3U2L2U3L2":GOTO880
850 A$="D85R5D2U2R4H4":GOTO880
860 A$="F5G5H5E5":GOTO880
870 A$="BM+2,+3H4D2F3H3U2G2F5E5H. 0 L3G2" GOTO880
880 FOR A= 1TO 2
890 IF A=1 THEN X1=X+7 Y1=Y+
900 IF A=2 THEN X1=X+ Y1=Y+8
910 DRAW"BM"+STR$(X1)+","+STR$(Y1)+"C"+STR$(C)+A$
920 PAINT(X1,Y1+5),C,C
930 NEXTA
940 X=X+47
950 IFT=5 THEN X=10:Y=100
960 RETURN
970 REM ask for skate
980 DRAW"BM20,170 C3R4L4U3R4L4U3R4BM+4,+6U8DF4DL4BM+6,+
6U6L2R4BM+4,+6R4L4U3R4L4U3R4BM+4,+6U6R3FD6L3RF3BM+4,+0"
990 DRAW"BM+6,-1FR2EH4ER2FBM+6,+5U6L2R4BM+4,+6U5ER2FD5U
3L4BM+8,+3U6BM+0,+3RE3BF3BM+4,+0R4L4U3R4L4U3R4BM+4,+6"
1000 IF TT=0 THEN 1960
1010 A$=INKEY$
1020 IF A$="" THEN1010
1030 IF A$="0" THEN GI [illegible]
1040 [illegible]
1050 [illegible]
1060 IF STAKE <11 THEN GOTO1010
1070 SOUND200,5
1080 [illegible]
1090 FOR F=1 TO 3
1100 [illegible]
1110 [illegible]
1120 [illegible]
1130 [illegible]
1140 [illegible]
1150 [illegible]
1160 [illegible]
1170 [illegible]
1180 [illegible]
1190 [illegible]
1200 [illegible]
1210 [illegible]
1220 [illegible]
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1290 [illegible]
1300 [illegible]
1310 [illegible]
1320 [illegible]
1330 [illegible]
1340 [illegible]
1350 [illegible]
1360 REM**sounds program to sub routines
1370 GOSUB 1470
1380 GOSUB 700
1390 GOSUB1650
1400 SCREEN1,0
1410 GOSUB1650
1420 [illegible]
1430 [illegible]
1440 [illegible]
1450 [illegible]
1460 [illegible]
1470 [illegible]
1480 [illegible]
1490 [illegible]
1500 [illegible]
1510 [illegible]
1520 [illegible]
1530 [illegible]
1540 [illegible]
1550 [illegible]
1560 [illegible]
1570 [illegible]
1580 IF A$= THEN T=0
1590 IF [illegible] AND A$ <"L" THEN SOUND1,10:GOTO1570
1600 [illegible]
1610 [illegible]
1620 LINE(10,165)-(140,185),PSET,BF
1630 [illegible]
1640 RETURN
1650 REM**total****
1660 COLOR7,2
1670 LINE(150,12)-(245,185),PSET,BF
1680 DRAW"S4C3BM160,180"
1690 [illegible]
1700 FOR D=21 TO
1710 D$=MID$(STR$(TT),D,1
1720 IF D$<>"0" [illegible]
1730 ON VAL(D$+1) [illegible]
,740,750
1740 DRAW"BR2"
1750 NEXTD
1760 RETURN
1770 REM**n OR I ********
1780 FOR N=0TO1
1790 T(A)=7(T A)
1800 NEXTA
1810 IF T(0)=T(1) THEN W=1:GOTO1880
1820 IF T(0)=12 THEN W=1:GOTO1890
1830 IF T(1)=12 THEN W=1:GOTO1880
1840 IF T(0)=13 THEN IF T(1) 9 THENW$="H":GOTO 870 ELSE
 W$= L":GOTO 1870
1850 IF T(1)=13 THEN IF T(0)>9 THEN W$="H":GOTO1870 ELS
E W$="L GOTO1870
1860 IF T(0)>T(1) THEN W$="H" ELSE W$="L"
1870 IF W$=Y$ THEN W=1 ELSE W=0
1880 IF W=1 THEN TN=ST*100 ELSE TN=0 ST=100
1890 TT=TT+TN
1900 GOSUB1650
1910 RETURN
1920 REM**check for high score
[illegible]
1950 [illegible]
1960 IF TT=0 THEN 2140
1968 REM**end***
1970 CLS
1980 PRINT@10,"THE SCORES"
1990 PRINT@42,"*** ******"
[illegible]
2140 INPUT#S1
2150 HS=TT
2160 IF LEN(HS)<12 THENHS=
2200 GOTO1960
2210 REM**reset**
[illegible]
```

```
1580 IF A$= THEN T=0
1590 IF [illegible] AND A$ <"L" THEN SOUND1,10:GOTO1570
1600 [illegible]
1610 [illegible]
1620 LINE(10,165)-(140,185),PSET,BF
1630 [illegible]
1640 RETURN
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,740,750
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[illegible]
2140 INPUT#S1
2150 HS=TT
2160 IF LEN(HS)<12 THENHS=
2200 GOTO1960
2210 REM**reset**
[illegible]
```

Micro Tip — TI-99/4A

Checking out SAVE and OLD

I have a useful tip which concerns the TI's SAVE and OLD commands. If you type in OLD CS1 and then decide to leave this mode, you can do so without turning the computer off by pressing E. Pressing E also allows you to leave the SAVE mode after typing in SAVE CS1. If you press C in either of these modes, you can check a program without having to enter the record mode first.

Austin Platt

CHRISTINE COMPUTING

TI 99/4A

BLAST IT

Disarm bombs with a wire guided robot, bombs must be disarmed in order within a time limit. 5 levels of play, high score table. **£4.95**

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A three part game, move left and right as you descend through the clouds, birds and aeroplanes. On to the caves and caverns then through the 3-D maze to the Core. **£4.95**

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100% machine code game making good use of the sound and graphic facilities of the 64. Munch your way around the maze avoiding the ghosts, etc **£6.95**

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The aliens are back

Keep off the encroaching extraterrestrial hordes in these action games. Our reviewers valiah them up

Volcanic Planet Spectrum £6.95

Thorn E M I, Upper Saint Martin's Lane, London WC2H 9LD

Addictive, exciting, fast moving, a very good game this.

Using either keyboard or joysticks you must manoeuvre around the mazes on various levels of the city of the Zerons until you fund the volcanic plug on the lower level

You plant a plasma bomb against this and then re-trace your steps to the surface before the subterranean metropolis is destroyed by a tide of molten lava

Besides displaying the maze adjacent to you the screen shows the state of your life support systems and a map of the city level you are on, with a coloured cursor indicating proximity of a lift to take you to the next level

You are able to destroy the Zerons with your Fire Blaster but this is not necessarily a good idea because, understandably, the more of them you kill the more annoyed the survivors get

The only snag was dragging myself away from the computer!

D.J.

instructions	90%
playability	95%
graphics	95%
value for money	90%

★-★-★-★-★

Alien Break in 32K BBC £6.99

Romik, 272 Argyll Avenue, Slough, Berks

A typical space shoot-out game with a few novelties

Using keyboard or joysticks, you must guard the earth from the Zargon fleet, consisting of mothership, attack ships, diving ships, missiles and pods

This gives you plenty to zap away at, and you can also dig holes in your defence wall to trap the falling pods before they mutate into indestructible mothership

The graphics are well up to standard, with clearly-defined and easily-identified ships. The speed of the ships is impressive, and the sound is good too

During loading, there's a catchy little tune, which will never make the Top Twenty but passes the loading time. After about 10or 20 loads, the tune ready starts to grate on the nerves.

But that's a minor criticism of a good-value game that's better than most

J H

instructions	90%
playability	80%
graphics	90%
value for money	80%

★-★-★-★-★

U.F.O. TI-99/4A £4.95

Christine Computing, 6 Florence Close, Watford, Herts

Your wits need to be as sharp as your reflexes when playing UFO. To save your city from certain destruct of alien spacecraft must be shot from the skies

The problem is that except for a few fleeting moments the UFOs are invisible, so their exact position must be committed to memory

Your fighter travels across the screen. When you think the fighter is directly beneath a UFO you open fire with your lasers

Failing to annihilate the alien causes part of your city to be destroyed. The game ending should your city become totally obliterated

Your own spaceship has limited resources when fuel and laser energy need replenishing, it must be landed at the refuelling base

Failing to refuel or making a crash landing brings the game to an end, whereupon the highest score is given

There are three skill levels. At the easiest level there is only one UFO at the next there is also a decoy, and at the third, two decoys

The game is great fun and addictive to play. My only criticism is that the position of the UFOs hasn't been randomized, so after several runs you can easily remember where they are

J W.

instructions	95%
playability	80%
graphics	80%
value for money	90%

★-★-★-★-★

Dancing Monster CBM-64 plus joystick £5

Commodore, 675 Ajax Avenue, Slough Trading Estate, Slough

Commodore have got to be insulting our intelligence by printing such simplified instructions with the game

They seem to be making a song and dance about setting up your computer system. This I would expect on the CBM 64 user manual but not on software

The game consists of a monster (to me it looks like a cross between an elephant and a grenade), which dances around the screen to some music

The tune appears to be a down graded version of 'In The Hall Of The Mountain King'. You must blast off parts of the monster with a cross-sight, controlled by the joystick

The graphics are good, the monster can turn round and dance in various ways. One criticism here would be that the graphics are not smooth but jump from one position to another

Full use of colour is made

The sound is good on the very fast level, which doesn't seem very hard to me. On the slower levels the sound slows down and is just a series of tones

The game is not the kind of thing you'd want to play every day. I found that after 15 or so minutes of cool noods play I was fed up with it

My first thought was that it looked like a great party game — a friend of mine said exactly the same

K.I.

instructions	20%
playability	80%
graphics	70%
value for money	70%

★-★-★

Super Meteors 48K Oric £6.95

Softek, 12 13 Henrietta Street, London WC 2

A space game of the Asteroids variety

You are in command of a space ship returning from hyperspace into the meteors. To protect yourself you need to blast the rocky lumps to smithereens with your hyper blasters

Your ship can be rotated and driven forward by manipulating your thrust controls, and points are scored by hitting the various size meteors

From time to time a space bandit will attempt to wipe you out and you need to exercise some skill to fend him off. If you do then a fat bonus is of course clocked up

The game is recorded in a rather clumsy way, involving loading two successive files from tape. I am sure this could be tidied up considerably

Part machine code, part BASIC, the action is quite smooth but suffers from a lack of colour

Sound effects are resonable but not particularly special, and the graphics are rather simple

I was left with the feeling that this was a good start to a game that had not been properly finished

If more variety and colour were available, it would be able to graduate from being just another game to something potentially very good

P.W

instructions	85%
playability	60%
graphics	50%
value for money	50%

★-★-★

LETTERS

Send your letter to Letters, Home Computing Weekly, No.1 Golden Square, London W1R 3AB. Don't forget to name your computer — the best letter could win £5-worth of software. Got a problem with your micro? We'll soon be starting a queries page, so send your technical questions to Queries at the above address

She's 100 per cent...

Everywhere, I seem to read or hear people saying that girls are not interested in or are not capable of using computers.

In my computer studies class at school over half the pupils are girls. "Surprising", as last year's exam's a girl got 96 per cent in her computer exam and of course was top of the class. This year she was top again with 90 per cent and achieved 85 per cent in her mock O level. The second and third places were also taken by girls.

Of course not all the girls in my class are totally interested in computers, thus causing rumours that all girls are not computer compatible.

Now I think I might as well say what I'm beating that the girl mentioned before is me!

I have my own ZX81 (wow!) and I am trying to start up my own software company, Eureka! which will hopefully supply at least one lovely "freeky" ZX81 users with useful and amusing games.

I think your magazine is excellent, being non expensive (especially for unemployed schoolgirls!) and just about the only computer magazine that still prints listings for the ZX81.

If possible, could you try and print a ZX81 Pacman type game?

Karen Oliver aged 16, Romford, Essex

★

We are sending you a copy of Munchers Quicksilva's Pacman type game for the 16K ZX81 — and not just because of your kind words about HCW! We would be glad to print this type of game for the ZX81 if one of our readers would like to submit a good original version.

And, if you're going on to A level may we wish you the best of luck. You obviously don't need luck for the real O level.

Circling around

Many thanks for the excellent VIC 20 program Tatting Turtle, by Alan Wilburn, published in HCW 4.

Here is a routine for drawing circles using the program, which may be of interest to other readers.

```
10 VIC PEN
20 DI = 47
30 FOR I = 1 TO 7
40 A = 76: B = 80
50 FOR Z = 0 TO 6.28
   STEP .03
60 X = CONZ*COS(Z) + A
   SINZ*SIN(Z) + 7 : B
70 PLOT X,Y
80 NEXT Z
90 DI = DI - 8
100 NEXT I
110 WAIT 198,7: SYS12
```

DI is the diameter of the circle to be drawn. A and B are the X and Y co-ordinates of the centre of the circle and lines 30, 90 and 100 cause seven circles to be drawn, the largest and smallest possible on the VIC screen with five in between as examples.

I'm a novice reader please advise me how to erase any part of the drawing on the screen under program control as I'm only now learning how to change the colour — is it possible this can be done?

G. de Ste, Chelmsford, Essex

Alien lines

My Alien 2000 program for the Oric (HCW 30) appeared with a few lines missing. These are the lines to be added:

```
740 IF SCRNCHR$(...
    THEN EXPLOSI
    FOR N, 60,60
    960
750 IF ... THEN ...
760 GOTO 700
770 REM
    POSITIONING OF
    INVADER
805 PLOT X,B, ...
    INK(RND(1)*20)+
810 GOTO 450
```

Hamant Patel

Hopping with dismay

Having become an addict of PSS's Hopper for the 16K ZX81, I was greatly dismayed to come across what I think are a number of bugs.

This happened when I was well on the way to a good score — I had completed the third screen and up flashed the score of just over 10 000 points.

I pressed the key to start the next screen but, instead of the game starting, the screen began to flash.

At first I thought it must be RAM "wipe out". But it's has now happened on a number of occasions. How maddening!

The other bug happens when the game is started and the frog is moved out into the lanes of traffic. If a key is then pressed the oncoming traffic will disappear as and when they come into contact with the frog.

Once a line of traffic has disappeared it will be gone until the next screen. This operation can be carried out on all the lanes of traffic.

Both this and the other "pop" star are otherwise superb games.

Simon Haigh, Mirfield, West Yorks

John Hutchison, sales manager of PSS said "We are not aware of any bugs on this program. In fact we have had a number of users applauding it since it went on sale about 18 months ago here and abroad.

I would ask Mr Haigh to send the tape to our development and software projects manager Campbell Mc Causland. It's just possible he's got a duff tape and we shall only be too happy to replace it for him.

Mr Hutchison said PSS had now ceased producing all its ZX81 tapes except those in line with its policy of running out older programs. All ZX81 cassettes except Maze Death Race, Atlantis, Meteor Mission would now only be available by post.

Leap of Imagination

This is a special announcement to ask you 48K Spectrum owners who are hooked on Bug Byte's Manic Miner there follows details of a routine which enables you to jump to any screen in the game at will.

Load the game as usual, press ENTER to start the game, then enter this number 6031769. A beep should appear in the bottom left hand corner.

You can now jump to any screen simply by pressing the two key combinations. You should use the number keys 1 to 6, and all combinations must be made in the keys must be held down at the same time.

My congratulations to Bug Byte for such an excellent game. How did they do it?

Carry on mining!

L. Holding, Blackburn, Lancs

Top Ten programs for the Dragon

1	Cuthbert goes Walkabout	Microdeal (1)
2	Frogger	Microdeal (9)
3	Mined Out	Quicksilva (7)
4	Night Flight	Salamander (–)
5	The King	Microdeal (2)
6	Gridrunner	Salamander 10)
7	Dragonfly 2	Hewson (6)
8	Ring of Darkness	Wintersoft (–)
9	Talking Android Attack	Microdeal (4)
10	Cuthbert in the Mines	Microdeal (–)

Top Ten programs for the VIC-20

1	Arcadia	Imagine (3)
2	Wacky Waiters	Imagine (4)
3	Gridrunner	Llamsoft (5)
4	Catcha Snatcha	Imagine (2)
5	Wizard and the Princess	M.House (–)
6	Skyhawk	Quicksilva (6)
7	Laser Zone	Llamsoft (–)
8	Matriz	Llamsoft (–)
9	Superaiders/ Bomber Run	K Tek (–)
10	Plague/ Alien Demon	K Tel(–)

Compiled by Websters Figures in brackets are last week's positions

Top Ten programs for the Commodore 64

1	Frogger	Interceptor (1)
2	Crazy Kong	Interceptor (6)
3	Spriteman	Interceptor (3)
4	Motor Mania	Audiogenic (5)
5	Laserzone 64	Llamsoft (–)
6	Purple Turtle	Quicksilva (10)
7	Attack of the Mutant Camel	Llamsoft (–)
8	Quintic Warriors	Quicksilva (–)
9	Hover Bover	Llamsoft (4)
10	Gridrunner 64	Llamsoft (8)

Compiled by Websters. Figures in brackets are last week's positions

Top Ten programs for the Spectrum

1	Atic Atac	Ultimate (1)
2	Lunar Jetman	Ultimate (2)
3	Pyramid	Fantasy (5)
4	Alchemist	Imagine (–)
5	Ant Attack	Quicksilva (3)
6	Penetrator	M.House (–)
7	Death Case	Micro Mega (7)
8	Pool	CDS (10)
9	Jetpac	Ultimate (4)
10	Mr Wimpy	Ocean (–)

Compiled by W.H.Smith. Figures in brackets are last week's positons.

BEST SELLERS

Top 30

1	Manic Miner	Bug-Byte	Spectrum (5)
2	The Hobbit	M.House	Spectrum (4)
3	Valhalla	Legend	Spectrum (7)
4	Jetpac	Ultimate	Spectrum (4)
5	Hunchback	Ocean	Spectrum (–)
6	3D Ant Attack	Quicksilva	Spectrum (–)
7	Kong	Ocean	Spectrum (3)
8	Lunar Jetman	Ultimate	Spectrum (2)
9	Zzoom	Imagine	Spectrum (–)
10	The Hobbit	M.House	CBM 64 (–)
11	Hunchback	Ocean	CBM 64 (–)
12	Hunchback	Superior	BBC (–)
13	Falcon Patrol	Virgin	CBM 64 (–)
14	Horace goes skiing	Psion	CBM64 (–)
15	Harrier Attack	Durrel	Spectrum (–)
16	Frogger	Microdeal	Dragon (–)
17	The King	Microdeal	Dragon (21)
18	Cuthbert in the jungle	Microdeal	Dragon (24)
19	Atic Atac	Ultimate	Spectrum (1)
20	Skramble	Anirog	CBM64 (–)
21	Arcadia	Imagine	VIC 20 (–)
22	Kong	Anirog	CBM64 (–)
23	Hunter Killer	Protek	Spectrum (–)
24	White Knight	BBC Soft	BBC (–)
25	The Hobbit	M.House	Oric (–)
26	Chequered Flag	Psion	Spectrum (–)
27	Knife of Kishtu	Future	Dragon (–)
28	Chuckie egg	A&F	Spectrum (9)
29	Jetpak	Ultimate	VIC 20 (–)
30	Twin Kingdom Valley	Bug-Byte	Spectrum

Compiled by PCS Distribution(0254 691211) and sanctioned by the Computer Trade Association. Chart is for retail sales in individual outlets in theUK and Northern Ireland for the fortnight ended January 18

Top Ten programs for the ZX81

1	Scramble	Quicksilva (5)
2	Defenders	Quicksilva (1)
3	Asteroids	Quicksilva (6)
4	Invaders	Quicksilva (2)
5	Chess	Sinclair (8)
6	Space Raiders	Sinclair (4)
7	Fantasy Games	Sinclair (–)
8	Chess 1K	Sinclair (–)
9	Krazy Kong	PSS (10)
10	English Lit II	Sinclair (–)

Compiled by Websters. Figures in brackets are last week's positions

Do you use your micro?

A very legitimate study done for one of the best respected computing magazines over here shows that a surprising number of micro owners just aren't using their computers.

In a survey for InfoWorld, Link Resources revealed that of 2,000 personal computer owners (selected at random) in New York City, about 39 per cent of those who had purchased their machines in the last six months were not using them. Of all those who had owned their machines from six months to a year, 21 per cent were no longer using them. For those who had owned a machine longer than a year, the non-use figure fell to 17.

This seems to indicate to the surveyors that users were not sure what they would use their computer for at the time of purchase. Furthermore, amount of used was directly related to price. The more a computer cost, the more likely it was to be used. Only nine per cent of those who had paid over $300 for their system let it sit idle, whereas 30 per cent of those who paid less than $300 no longer used their system.

Apparently, the higher the cost of the system the greater its utility and the more software there is available. It turned out, unsurprisingly enough, that a majority of the machines not being used were low cost machines with little memory, lousy keyboards, no software, and offering no financial incentive to use them.

Such machines can be used to play games on, but not to learn how to program or learn on in an effective manner. In a follow-up in-depth survey of 100 owners, it was again found that the owners of more expensive machines were less likely to reject them. Only 19 per cent of Apple owners, 11% of Tandy owners, and 13 per cent of IBM PC owners had stopped using them. In comparison, 20 per cent of TI-99 4A owners and 30 percent of Atari owners had stopped using their machines.

The conclusion drawn by the surveyors was not entirely negative. They concluded that many of those not using their cheapie machines had learned that such machines did not meet their needs and would end up buying more sophisticated systems when they could afford them.

In the meantime, the cost of learning this was not unduly expensive. The results of this survey have other implications, ones that we can read between the lines. It is clear that no one can define precisely what it is one should do with their home computer. This being the case, the average buyer/user is often at a loss when bringing the machine home.

If all you knew before buying a computer is their image on TV and in the movies (all-knowing all-powerful devices that respond to voice communication and are large and intimidating), and then you bring home your little box, you just might start asking yourself, as those folks did in New York: "This is a computer? How come it doesn't do anything?"

Don't ask me. I don't know either.

As a writer, whenever I encounter a new word processor, or the review of one, I devour it instantly. Very rarely do I ever get a chance to say anything about any of them, for most are designed to run on my Apple II or on other machines — none of which any of you reading this column are likely to own.

Well, this week I am pleased to report on one of the finest new products to come along, and one that runs on the VIC 20 or Commodore 64. It is called Quick Brown Fox.

It can run on either machine with unexpanded memory and can store and retrieve text files from either tape or disc. The program is menu-driven, and has three separate sections: editing, entry, and output. It can communicate over a modem. It can use embedded print formatting commands too, just as its more expensive competitors do.

On the VIC, it will take advantage of any 40 or 80 column display you might have, or it will just display in the standard 22-column mode. It comes in cartridge form, so you really need to use an expansion chassis on the VIC to get any real use out of the processor. The program will support most common printers without modification.

The only major drawback of the program is that you must enter the edit mode to make any changes in any other line of the text than the one you are currently working on. Since the editor is menu-driven, this can be a very slow process. The program handles errors very well, and is very difficult to crash. It will query any instructions that would result in the loss of text if executed. The documentation is well done, easy to follow and understand.

The program itself is easy to learn to use, if not as versatile as others. For home use, by non-professional writers, this might be just the ticket. The program lists for all of $65, and is available from Quick Brown Fox, 548 Broadway, Suite 4F, New York, NY 10012. Phone. (212) 925 8290.

Here's some news about an interesting low cost printer. Just announced by Teletext Communication (TTX), of Foster City, the model TTX 1280 Portoprint is a truly remarkable portable dot-matrix printer. Weighing all of the unit will print bi-directionally, and will run on either a self-contained 6-volt battery or on the mains voltage. If on batteries, it will print at 40 characters per second rate, or 80cps on mains power. It comes compatible with either serial (RS-232) or parallel printer ports, and prints on thermal paper. It will print 40, 80, or 132 characters per line, or 72 by 72 dots per inch in graphics mode. It uses friction feed, and is nearly silent. Battery life is reported to be about two hours or 4,000 to 5,000 print lines. The firm is expecting to sell a lot of these units at only $199 list price each. Look for them in the stores by the middle of this year.

Coals to Newcastle Division, Thought You'd Be Interested Dept. Now that TI has dropped out of the small home computer race, a lot of people in the industry are of the opinion that it may be quite difficult to introduce a successful home computer unless it is IBM PCjr. compatible.

Tano Corp., of New Orleans, thinks otherwise. In what many consider to be a bold, if not reckless move, Tano had decided to import a U.S. version of the Dragon 64, which has just gone on sale in the U.K. Tano firmly believes they will be successful too because they are throwing in about $150-worth of free software to purchasers of the $399 machine, and also because they will offer free training to the stores carrying the machine.

To accompany the machine, the firm is throwing in free a mailing list program, a spreadsheet program, a database program, two adventure games, two educational games, and Microsoft Extended Colour BASIC, along with a line editor. Tano is also offering a disc system for $399. The Dragon will be able to display nine colours on American TV screens.

What will undoubtedly help sales is the fact that the unit is so compatible with Tandy's Colour Computer. It will run about 98 per cent of all software made for the Tandy. It certainly has a much better keyboard, being essentially modelled off the IBM Selectric layout. Not only that, but Tano itself is releasing about 60 additional software packages for the machine, about 20 per cent of which will be available on plug-in cartridges.

Tano is marketing the machine through major American retailers such as Macy's, Gimbels, and the Broadway chains. Store clerks are being trained how to run demo programs as well as how to run the bundled software programs. This alone should make a tremendous difference in sales.

If firmly believe that the market is there; it remains to be seen if anyone except Commodore and (presumably) IBM can truly capitalize on it.

See you next week, same place, same time.

Bud Izen
Fairfield, California

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